

Forest Trees of Central Western Ghats

A Pictorial Field Manual

G. RAMACHANDRA RAO

VISHNU D MUKRI •M. D. SUBASH CHANDRAN • T. V. RAMACHANDRA



First Author with Tetrameles nudiflora (Bondsa mara) in Hosagunda sacred grove

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Authors: G. Ramachandra Rao, Vishnu D Mukri, M. D. Subash Chandran

& T. V. Ramachandra

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Uttara Kannada Dist.

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JAWAID AKHTAR, I.A.S. Additional Chief Secretary to Govt. Forest, Ecology and Environment Department

MESSAGE

Trees are a valuable natural capital of a nation. Among the 6771 plant taxa recorded from Karnataka 1404 taxa (21%) are trees. The trees of the Western Ghats are a unique treasure since they offer a multitude of services to human beings as well as to the ecosystem. The medicinal property of trees is one of the principal services which should be recognised and given due importance while the global herbal trade is growing rapidly. The global market for Herbal Medicines is projected to reach US\$248.6 Billion by 2030, growing at a CAGR of 7.9% over the analysis period 2022-2030.

I congratulate the Karnataka State Medicinal Plants Authority for publishing the field guide "Forest Trees of Central Western Ghats – A Pictorial Field Manual" at a crucial time when loss of biodiversity is widespread. The manual is of great relevance to the forestry staff to readily identify the trees of ecological and economic significance and carry out suitable conservation measures. The endeavour of the authors to make taxonomy reachable to all is much appreciated. It has reduced the burden of carrying voluminous flora to the field. The authors' novel approach to identify very large trees by looking at the fallen foliage, thorns, wood fragrance, latex, sap, leaf arrangement, and leaf type has simplified the laborious job of tree identification. The information about the conservation status, medicinal value, and ecosystem services of the one hundred thirty-one trees of Central Western Ghats provided in the book aids in a better understanding of the flora.

I would like to express my appreciation for the commendable efforts made by the Karnataka State Medicinal Plants Authority in spreading awareness about the significant role of medicinal plants in promoting health, supporting livelihoods, and preserving the ecosystem, not only for the benefit of the stakeholders but also for the public. Such initiatives can help to achieve the Sustainable Development Goals.

(Jawaid Akhtar)
Additional Chief Secretary to Government
Department of Forest, Ecology & Environment

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Rajiv Ranjan, I.F.S.
Principal Chief Conservator of Forests
(Head of Forest Force)

Message

The Western Ghat is internationally recognized as a region of immense global importance for the conservation of biological diversity, besides containing areas of high geological, cultural, and aesthetic values. It also has an exceptionally high level of biological diversity and endemism and is recognized as one of the world's eight 'hottest hotspots' of biological diversity. The forests of the site include some of the best representatives of non-equatorial tropical evergreen forests anywhere and are home to at least 325 globally threatened flora, fauna, bird, amphibian, reptile, and fish species. The Karnataka Forest Department is providing stringent protection to the area.

I am happy to note that the Karnataka State Medicinal Plants Authority has prepared a field guide "Forest Trees of Central Western Ghats – A Pictorial Field Manual" for easy identification of trees, especially IUCN RED-listed, endemic trees with potential medicinal value. The book provides colourful photographs of bark, leaves, flower, fruits, and seeds along with details regarding the habit, habitat, canopy, IUCN status, medicinal value, vernacular names, and ecosystem services of the tree. I congratulate the authors, Dr. G. Ramachandra Rao, Dr. T V Ramachandra, Sri-Vishnu D. Mukri, and Dr. M. D. Subash Chandran for their sincere efforts to bring out this informative manual.

The field manual is beneficial to botanists and nature lovers alike who wish to study the trees of Central Western Ghats. Notably, the book will be of great assistance to forest officers and frontline staff to identify and understand the value of trees while in the field. I sincerely appreciate the effort of the Karnataka State Medicinal Plants Authority in building the capacity of the forest staff to conserve and sustainably utilise the medicinal plant resource through such appropriate programs.

Rajiv Ranjan IFS

'ಅರಣ್ಯ ಭವನ', 4ನೇ ಅಂತಸ್ತು 18ನೇ ಕ್ಲಾಸ್, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು-560003,

ದೂರವಾಣಿ : 080-23343770, ಫ್ಯಾಕ್ಸ್ : 080-23341484 ಮಿಂಚಂಚೆ : pccfkar@gmail.com / pccf@aranya.gov.in

"Aranya Bhavan" 4th Floor, 18th Cross, Malleshwaram, Bengaluru - 560 003

Ph: Off: 080-23343770, Fax: 080-23341484, e-mail: pccfkar@gmail.com, pccf@aranya.gov.in

T.K. ANIL KUMAR, I.A.S., Principal Secretary to Government Health and Family Welfare Department





Tel: 080-2225 5324 080-2203 4234 Fax: 080-2235 33916 E-mail: prs-hfw@karnataka.gov.in Room No. 105, First Floor Vikasa Soudha, Dr. B.R. Ambedkar Veedhi Bengaluru - 560 001

Message

The Karnataka State Medicinal Plants Authority supported by the National Medicinal Plants Board, Ministry of AYUSH, New Delhi is publishing a unique book "Forest Trees of Central Western Ghats - A Pictorial Field Manual" which is commendable. The Western Ghats is a haven for many ecologically and economically important trees. Several are endemic to the region and many among them are facing different levels of threat. KaMPA's effort to popularise such tree species with medicinal value by providing an easy identification manual is apt and timely.

The Authority has been spearheading the objectives of the National Medicinal Plants Authority (NMPB), New Delhi, and has been working towards institutionalising mechanisms for the conservation, development, and sustainable utilisation of medicinal plants.

May this field manual aid in spreading awareness about the rare and endangered medicinally important tree species of Central Western Ghats.

I congratulate the authors, the Chief Executive Officer, and the staff of KaMPA with whose active interest and commitment it has been possible to publish this book.

I hope such initiatives will help to build the capacity of traditional healthcare providers and contribute to public healthcare. Further, it helps in the conservation of the medicinal plant resource of the state and the development of the medicinal plant sector to tap global opportunities for the benefit of local communities.

(T. K. Anil Kumar)

Principal Secretary to Government Health and Family Welfare Department



Dr. Chenraj Roychand Chancellor, Jain (Deemed-to-be-University)

MESSAGE

If at any point of time you take a walk in the woods, you will pleasantly be made to believe that amongst all the creations in the universe, there is nothing else more enchanting and equally refreshing than trees and forests. With their hungry mouths thrust against nature's ever flowing richness for sustenance, trees and the forests in which they dwell are without doubt the biggest source of livelihood for mankind.

As trees in forests look up to the heavens, straining all their sinews during the day to receive the vital warmth from the sun's rays or the burst of rain from the skies, before folding up at the close of day, these creations support mankind in diverse ways and provide a bouquet of services, regulating, and accentuating our cultures in diverse ways. Intriguingly, India straddles high amongst the nations of the world not only for its unique diversity and heritage but also for the fact that it features amongst the top ten countries in the world with expansive forest lands. Admirably, statistics paint even a better picture. Of the whopping total of 47,513 species of plants, with angiosperms comprising of 18,532 species (23% endemics) cater for 11.4 percent of the world's flora. In comparison with the Eastern Ghats or Deccan plateau, the tropical forests of the Western Ghats remain ecologically endowed with an impressive biodiversity and tagged as one of the 36 biodiversity hotspots in the world because of the high concentration of endemic species.

The identification and conservation of these plants and their ecosystem remains a distinct task for botanists if trees are to be safeguarded for generations to come. Along with conservation, we should be mindful of the fact that with the unprecedented climatic changes and unparalleled anthropogenic changes, the present biodiversity crisis needs urgent redressal by firstly identifying, classifying and naming what remains of our biological diversity. Unfortunately, in our present times of genomics and applied sciences, the taxonomist remains an endangered species because of drawbacks in institutional and financial support. In reality, identification of tropical plants, with its immense diversity and non-reachable large trees is often trickier than it seems and requires a lot of patience, resilience and practice.

Having taken upon themselves the herculean task to bring to the fore, some of these challenges, I wish to compliment the efforts of the authors from Jain University and Indian Institute of Science and congratulate them for bringing out this handy manual that will aid in identifying the tree flora of the Central Western ghats. Dr. G. Ramachandra Rao and coauthors, have done a commendable job by making the world of trees and forests accessible to all those who have an interest in Nature and its conservancy.

This beautifully crafted and designed pictorial manual along with its practical details makes identification of biodiversity more thrilling and interesting at the same time.

Dr. Chenraj Roychand

Foreword

The Western Ghats is one among the thirty-six world's biodiversity hotspots and home to thousands of species of plants and animals many of which are endemic and endangered. Among the most diverse and important groups of organisms in this region are the forest trees. They provide vital ecosystem services such as habitat for wildlife, water regulation, soil conservation, and carbon sequestration.

The book is a pictorial field manual that covers 131 species of forest trees with emphasis on medicinally valuable species found in the central part of the Western Ghats of Karnataka. It provides detailed descriptions, illustrations, photographs, distribution maps, and easy identification keys for each species, along with information on their ecology, uses, and conservation status. The book focuses on easy field identification techniques based on morphological, and vegetative characters, often represented pictorially. It also provides a botanical glossary, illustration of leaf shape and inflorescence types, and species index, which provides ready reference.

The vast field experience of the authors has resulted in bringing out a simplified field manual for easy identification of the trees of Central Western Ghats. The book intends to reach a wide range of readers, including students, researchers, teachers, naturalists, foresters, conservationists, policymakers, and anyone interested in the natural history of the Western Ghats. This book, in particular, is of great benefit to forest frontline staff.

I hope this book will inspire more people to identify, appreciate, study, and protect the forest trees of the Western Ghats. They are not only a source of beauty and wonder but also a vital part of our life support system.

Sudarshan G. A. IFS Chief Executive Officer Karnataka State Medicinal

Plants Authority

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AUTHORS

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Forest Trees of Central Western Ghats - A Pictorial Field Manual

INTRODUCTION

The Western Ghats, on account of its exceptional biodiversity coupled with the serious threat of depletion, is considered one of the 36 global biodiversity hotspots. It harbors over 4,000 species of flowering plants (40% endemics), 330 species of butterflies (11% endemics), 156 species of reptiles (62% endemics), 508 species of birds (4% endemics), 120 species of mammals (12% endemics), 135 species of amphibians (75% endemics) and 289 species of fishes (41% endemics) (Daniels, 2003; Gururaja, 2004; Sreekantha et al., 2007). Since trees play a primary role in maintaining the ecosystem it is essential to know the tree flora of the Western Ghats to conserve the Ghat ecosystem. With this in view, the field manual has been developed.

The manual is based on the floristic studies conducted in Uttara Kannada district, and to some extent in Shivamogga and other districts harboring Western Ghats of Karnataka. It delves into selected forest trees, representing different forest types from evergreen to dry deciduous and diverse habitats from *Myristica* swamps to rocky terrain. The trees portrayed in the manual have been chosen for their representativeness of ecosystems, their ecological roles in the system, and for their endemism and rarity. E.g., *Dipterocarpus indicus* and *Vateria indica* are representatives of the primary forests, especially sacred groves; others like *Olea dioica*, *Polyalthia fragrans* and *Terminalia paniculata* are widely distributed trees.

The manual portrays more evergreen tree species and endemics than deciduous species since endemism is more pronounced among the evergreen species than the deciduous ones. This may be explained by the connection of the Indian subcontinent with the Gondwanaland in the geological ages. The break-up of Gondwanaland from Madagascar, eventual northward drifting from the equatorial region, experiencing highly wet conditions, consequent collision with Eurasia, the rise of Himalayas etc., made the region rich in plants of varied lineages, from Gondwana landmasses to arrivals from Eurasia. Whereas, following the rise of Himalayas, the climate became drier in most of the Indian plains causing the disappearance of major evergreen forests. However, the Western Ghats, became a refugia for several endemics, since major portions experienced heavy rainfall and humid conditions (Karanth, 2003; Prasad et al., 2009).

The importance of pictorial flora

Classical floristic works such as the Flora of Presidency of Bombay (Cooke, T. 1901-1908), Forest Flora of Bombay Presidency and Sind (Talbot, W.A. 1906-1911), Flora of Karnataka (C. J. Saldanha (1984-1996) are generally descriptive with complex scientific terminology. They predominantly rely on floral and fruit

characteristics and other subtle characters to distinguish closely related species. Amateur nature enthusiasts, students and field workers often find it difficult to use such floristic works in the field despite their great benefits. Hence our focus here is on easier field identification techniques based on more obvious, morphological, and vegetative characters, represented pictorially.

The Central Western Ghats region, encompassing diverse array of ecosystems and habitats, is one of the most well-studied regions, and has been attracting more professionals and amateurs interested in flora, medicinal plants, forestry, ecological studies, etc. Further, discoveries of several new species from the region, e.g., the tree *Semecarpus kathalekanensis*, (Dasappa and Swaminath, 2000), climbers *Friesodielsia sahyadrica* (Page & Surveswaran, 2014), *Reissantia sessiliflora* N.V. Page, Srivastav & R. Rao (Page, et. al., 2017) and herbs like *Eriocaulon karaavalense* Darsh., R.K. Choudhary, Datar & G.R. Rao (Darshetkar et al., 2019) etc., and rediscovery of highly threatened southern Western Ghat species like the trees *Madhuca bourdillonii* and *Syzygium travancoricum* (Chandran et al., 2008; Krishnakumar & Shenoy, 2006) and new reports like *Fimbristylis pubisquama* Kern and *Schoenoplectus grossus* (L. f.) Palla, *Isachne pulchella* Roth ex R. & S, *Dimeria avenacea* (Rao et al., 2011) have captured the greater attention of botanists.

The manual contains 131 forest tree species which are pictorially grouped based on easily identifiable morphological characters. Photographs of bark, twig, leaves, flower, fruits, seeds etc., are given for easier identification. Additionally, details of tree phenology, ecology, and threat status along with taluk-wise distribution of tree species (in Uttara Kannada district) are provided. The manual will benefit beginners, professional taxonomists, and nature enthusiasts, trying to identify trees from Central Western Ghats. While we have tried to cover as many trees as possible, this is not an exhaustive manual with many tree species excluded due to unavoidable reasons. However, this manual gives reasonable assistance in the identification of a large number of trees from this region, particularly from wetter low to mid-altitude forest.

How to use the manual

Standing below high-statured evergreen trees such as *Calophyllum polyanthum*, *Lophopetalum wightianum* or *Ficus nervosa*, with no flower or fruit easily visible, one would find it hard to identify the tree using the conventional floras. Therefore, the keys in the manual empasise the vegetative characters. The buttresses, stilt roots, bark, exudations, etc., are some prominent features of a tree that are visible in all seasons. These prominent vegetative characters have been used as keys to identify trees. These characters are crucial for beginners and also spares them from carrying bulky, descriptive floras during arduous treks in the forest. Nevertheless, after returning from the field floras should be consulted for further verification and final confirmation, as this manual is in no way a replacement for classical floras.

Efforts have also been made to incorporate a few lines on ecology and utilities of the species in the manual. The tradition of using botanical terminology is continued in this manual as such terms are more apt expressions of the characters than the routine language. However, a complete glossary of technical terms with appropriate illustrations is provided for ready reference.

Trees have been grouped based on fourteen easily recognisable morphological characters. For the first few groups, characters like bark, wood, thorns, etc., are given importance in arriving at identification. The presence of thorns or spines is useful for narrowing the choice of species. One may, thereafter, move on to fragrance, latex or sap which give important clue for identification. Fragrance of the wood is important in field identification, for which one has to make a small incision in the wood. Tree identification, inside a dense forest, using such vegetative characters becomes an art through experience.

When characters from bark, wood, latex, etc., do not match with the species one can move on to twigs or leaves. Leaves are easily available material for identification. Fallen leaves or twigs can be collected from the ground or from the lower branches or large saplings. Thereafter, based on the venation, leaf arrangement, or other features like simple or compound leaf, whether the tree has three or more veins from the leaf base, or whether the leaves are arranged in whorls at nodes and similar readily available features are taken into consideration for identification.

Some of the things to be considered are:

- 1. Start identifying the tree from the first group (Trees armed with thorns / prickles) and if that character is lacking go to the next group i.e., trees with fragrant wood and so on.
- 2. If the characters are not so well evident then they are ignored. For instance, *Euonymus indicus* leaf has few serrations towards the tip, giving the appearance of leaf with entire margin at the outset. Hence it is placed in the group Simple opposite-entire leaves.
- 3. While using leaves for identification, leaves from mature trees should be used. For eg. *Artocarpus hirsutus* sapling has a different leaf shape and size than that of the adult plant.
- 4. When a tree has two prominent vegetative characters such as clustered leaves and milky latex, the more readily recognizable and striking character has been used for differentiation. If the species is not found in the above groups check in the groups using leaves as important character.
- 5. After confirming in broad categories the search can be narrowed down to exact species by screening through the photos which are provided in the field identification section for each species.
- 6. Palms are placed separately.

Abbreviations

Forest type: EV-Evergreen, SE-Semi-evergreen, MD-Moist deciduous, DD-Dry deciduous, SS-Scrub-savanna, FO-Forest opening, RI-Riparian (along streams and rivers).

FI & Fr (Flowering & Fruiting)- January (J), February (F), March (M), April (A), May (M), June (J), July (J), August (A), September (S), October (O), November (N), December (D).

Uses: Me-Medicinal, Ed-Edible, Or-Ornamental, Av-Avenue, OU-Other uses.

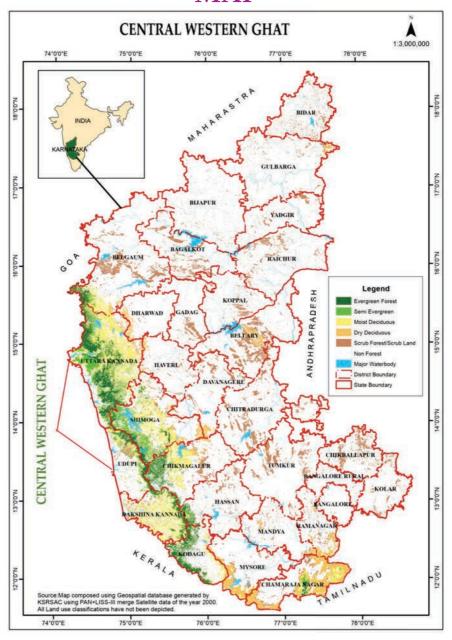
Endemism: WG-Western Ghat endemic, BE-Broader endemic (India-Sri Lanka).

Ecosys. Value (Ecosystem value)- Wi-Wild life importance

IUCN (Threat status): Cr-Critically Endangered, En-Endangered, Vu-Vulnerable.

Distribution in Uttara Kannada district: BH-Bhatkal, HO-Honnavar, KU-Kumta, AN-Ankola, KW-Karwar, YE-Yellapur, SR-Sirsi, SI-Siddapur, MU-Mundgod, HA-Haliyal, JO-Joida.

MAP



Tree species group under different identification characters

	A. Trees armed with thorns or prickles	Family	Page No.
1.	Catunaregam spinosa (Thunb.) Tirveng.	Rubiaceae	12-13
2.	Flacourtia montana J. Graham	Salicaceae	14-15
3.	Tamilnadia uliginosa (Retz.) Tirveng.		
	& Sastre	Rubiaceae	16-17
4.	Xantolis tomentosa (Roxb.) Raf.	Sapotaceae	18-19
	B. Trees with fragrant wood		21
5.	Canarium strictum Roxb.	Burseraceae	22-23
6.	Cinnamomum malabatrum (Burm.f.) J.Presl	Lauraceae	24-25
<i>7</i> .	Cryptocarya wightiana Thwaites	Lauraceae	26-27
8.	Dysoxylum malabaricum Bedd. ex Hiern	Meliaceae	28-29
9.	Litsea floribunda (Blume) Gamble	Lauraceae	30-31
10.	Litsea ghatica Saldanha	Lauraceae	32-33
11.	Machilus glaucescens (Nees) Wight	Lauraceae	34-35
<i>12</i> .	Reinwardtiodendron anamalaiense (Bedd.)		
	Mabb.	Meliaceae	36-37
	C. Trees with milky latex		39
<i>13</i> .	Artocarpus hirsutus Lam.	Moraceae	40-41
14.	Artocarpus heterophyllus Lam.	Moraceae	42-43
<i>15</i> .	Artocarpus gomezianus Wall. ex Trecul ssp.		
	zeylanicus Jarrett	Moraceae	44-45
<i>16</i> .	Donella lanceolata (Blume) Aubrev	Sapotaceae	46-47
<i>17</i> .	Falconeria insignis Royle	Euphorbiaceae	48-49
18.	Ficus callosa Willd.	Moraceae	50-51
<i>19</i> .	Ficus microcarpa L.f.	Moraceae	52-53
<i>20</i> .	Ficus nervosa Roth	Moraceae	54-55
21.	Madhuca longifolia var. latifolia (Roxb.)		
	A. Chev	Sapotaceae	56-57
22.	Madhuca neriifolia (Moon) H. J. Lam.	Sapotaceae	58-59
<i>23</i> .	Mammea suriga (BuchHam. ex Roxb.)		
	Kosterm.	Calophyllaceae	60-61
<i>24</i> .	Mimusops elengi L.	Sapotaceae	62-63
<i>25</i> .	Tabernaemontana alternifolia L.	Apocynaceae	64-65

D. Trees with stem exuding watery or colorer's age of the colorer's age					1
coloured sap 26. Garcinia gummi-gutta (L.) N. Robson 27. Garcinia indica (Thouars) Choisy 28. Gymnacranthera canarica (Bedd.ex King) Warb. 29. Knema attenuata (Wall. ex Hook.f. & Thomson) Warb. 30. Myristica beddomei King 31. Myristica magnifica Bedd. 32. Myristica malabarica Lam. 33. Semecarpus kathalekanensis Dassapa & Swami. 34. Piliostigma foveolatum (Dalzell) Thoth 35. Mallotus philippensis (Lam.) Mull. Arg. 36. Pterygota alata (Roxb.) R. Br. 37. Pterospermum reticulatum Wight & Arn. 38. Sterculia guttata Roxb. 39. Strychnos nux-vomica L. E. Trees with leaves clustered or whorled 40. Alstonia scholaris (L.) R. Br. 41. Dillenia pentagyna Roxb. 42. Elaeocarpus tuberculatus Roxb. 43. Holigarna grahamii (Wight) Kurz. 44. Holigarna grahamii (Wight) Kurz. 45. Lannea coromandelica (Houtt.) Merr. 46. Madhuca bourdillonii (Gamble) H. J. Lam. 47. Pittosporum dasycaulon Miq. 48. Terminalia bellirica (Gaertn.) Roxb. Clusiaceae 68-69 Clusiaceae 70-71 Clusiaceae 72-73 Myristicaceae 72-73 Myristicaceae 74-75 Myristicaceae 78-79 Myris	A. A.				
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<i>52</i> .	Calophyllum apetalum Willd.	Calophyllaceae	
<i>53</i> .	Carallia brachiata (Lour.) Merr.	Rhizophoraceae	130-131
54.	Chionanthus mala-elengi (Dennst.) P. S. Green	Oleaceae	132-133
<i>55</i> .	Eugenia roxburghii DC.	Myrtaceae	134-135
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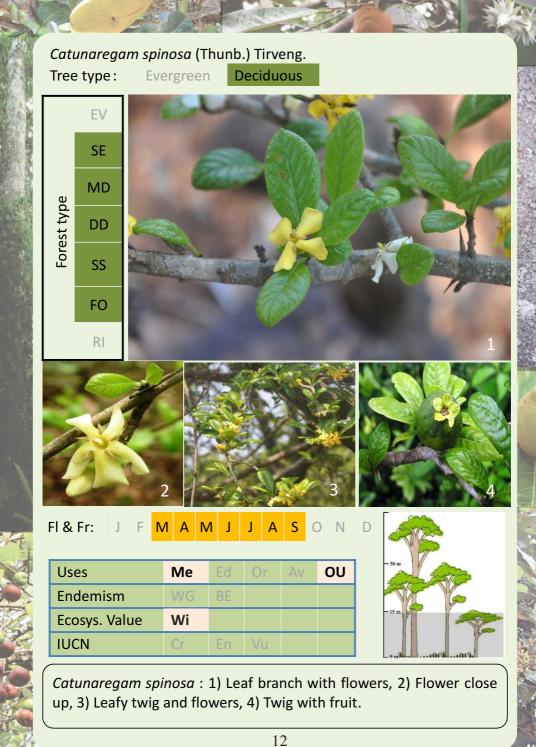
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81.	Aporosa cardiosperma (Gaertn.) Merr	Phyllanthaceae	
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83.	Tritaxis glabella var. praetervisa Chakrab &	Timuaceae	1)2 1)0
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101.	Nothopegia castaneifolia (Roth) Ding Hou	Anacadiaceae	230-23
102.	Mappia nimmoniana (J.Graham)		
	Byng & Stull	Icacinaceae	232-233
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120.	Harpullia arborea (Blanco) Radlk.	Sapindaceae	272-273
121.	Lepisanthes tetraphylla (Vahl) Radlk	Sapindaceae	274-275
122.	Sapindus trifoliatus L.	Sapindaceae	276-277
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Group-wise Tree Species Description and Photos

A. Trees Armed With Thorns or Prickles





CATUNAREGAM SPINOSA (Thunb.) Tirveng.

Family: Rubiaceae

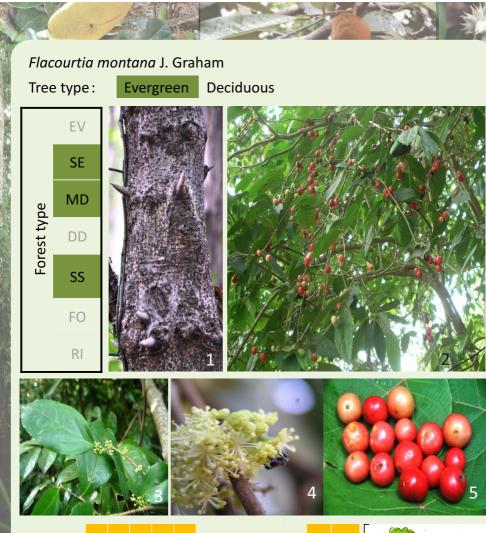
Synonym: *Randia dumetorum* (Retz.) Poir. **Kannada name**: Kaarekayi gida, Katmangari

Field Identification: Small trees or shrubs, armed with straight, nearly horizontal spines.

Botanical description: Leaves usually fascicled from suppressed branches, up to 6 x 4 cm, obovate, ovate or spathulate, obtuse at apex, tapering into the petiole at base; stipules triangular. Flowers white, turning pale yellow, at the end of short branches, fragrant. Calyx cupular, densely hairy outside. Corolla tube densely hairy outside. Stamens 5. Ovary 2-celled. Fruits a many seeded berry crowned with the calyx limb, c.2 cm in diam., yellowish when ripe.

Habitat: Common in hill top savanna, scrub jungles, and open deciduous forest.

Uses: Fruits used for fish poisoning and causes vomiting when consumed. Bark and fruits used for various medicinal purposes. Kerala forest tribes use tender leaves as food.

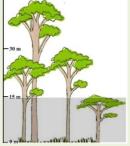


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Flacourtia montana: 1) Tree with thorns, 2) Branches with fruits, 3) Leafy twig with young flowers, 4) Flowering twig, 5) Ripe fruits.

FLACOURTIA MONTANA J. Graham

Family: Salicaceae

Kannada name: Mullu Sampige, Champe hannu.

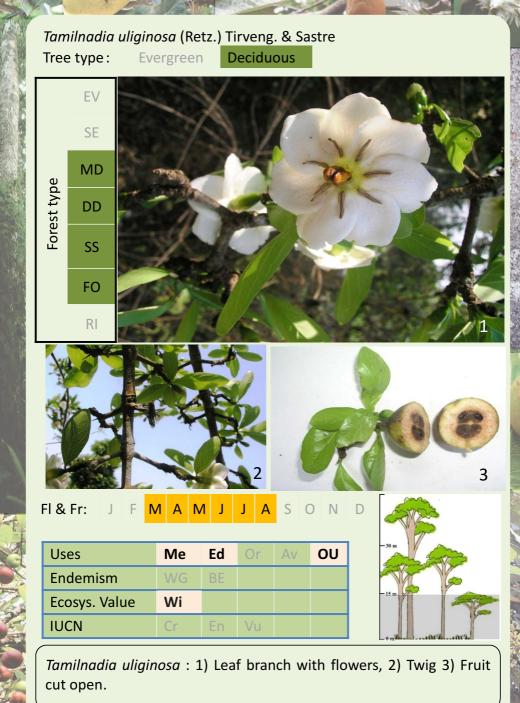
Field identification: Trunk and branches with large, normally unbranched thorns. Wood with somewhat foetid smell. (differs from *Scolopia crenata* which has branched thorns and coriaceous leaves).

Botanical description: Thorns to 5-8 cm long. Leaves alternate, 6-22 x 3-9 cm, ovate or elliptic-lanceolate, acuminate, base acute or rounded, crenate, 3-5 nerved from base, tomentose along midrib and nerves beneath; petioles up to 8 mm long. Flowers unisexual, in short densely pubescent racemes. Male flowers with sepals 4-5, tomentose. Berries 6-8 mm across, size of a cherry.

Habitat: Outskirts of evergreen to semi-evergreen forest and scrub forest.

Uses: The berries have pleasant sweet and acidic taste, eaten ripe, or pickled in immature stages. Wild animals such as Slender Loris, Indian Giant Squirrel, Sloth bears, Nilgiri Langur etc., and hornbills feed on the fruits. Chital feed on leaves.

BH HO KU AN KW YE SR SI MU HA JO



TAMILNADIA ULIGINOSA (Retz.) Tirveng. & Sastre

Family: Rubiaceae

Synonym: Randia uliginosa (Retz.) Poir.

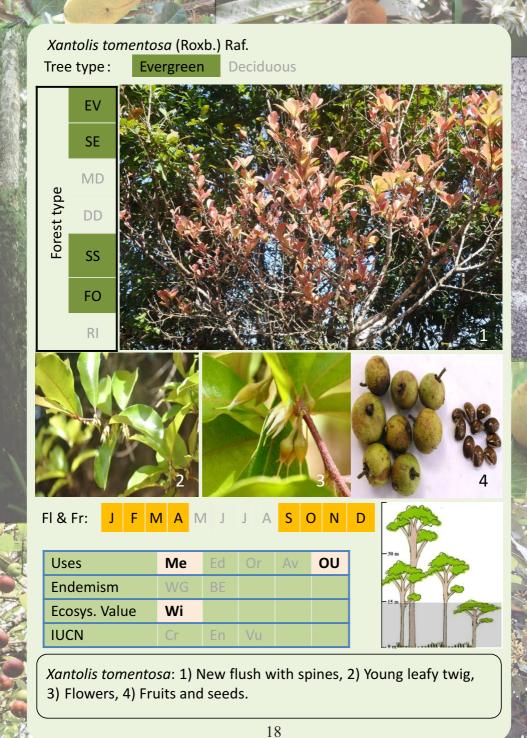
Kannada name: Kare, Adkale, Adkabale kai

Field Identification: Hard, rigid, small, thorny tree. Bark reddish-brown; branches 4-angled, stout. Leaves fascicled on suppressed branchlets; stipules interpetiolar.

Botanical description: Leaves opposite, up to 15 x 7 cm, obovate, or oblanceolate, clustered at the ends of terminal or axillary suppressed branchlets, gradually narrowed into the petiole at base. Flower solitary, dimorphic, up to 5 cm in diam., white and fragrnat; pedicels short. Calyx broadly tubular; lobes 5-8. Corolla lobes 5-8, twisted. Stamens 5-8. Ovary 2-celled. Fruit a pulpy berry, c.5 cm long, ovoid, yellow when ripe; seeds many.

Habitat: Rare in open and other scrub forest.

Uses: Roots used medicinally in diarrhoea and dysentry and various ailments. Fruits eaten as vegetable. Leaves are consumed by Gaur. Sambar deer feed on bark.



XANTOLIS TOMENTOSA (Roxb.) Raf.

Family: Sapotaceae

Synonym: *Sideroxylon tomentosum* Roxb.

Kannada name: Mullu Kumbal

Field Identification: Bark cracked, twigs armed with sharp spines; young parts pubescent; bark and leaves with milky sap.

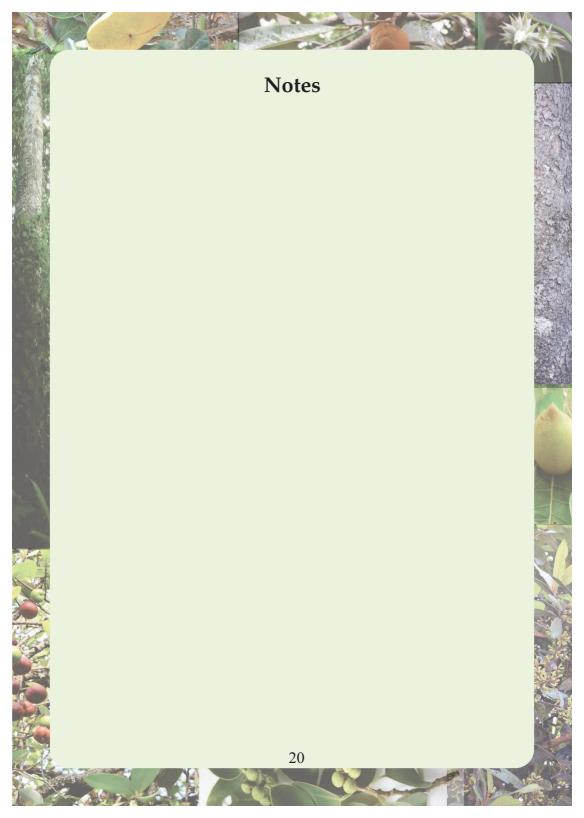
Botanical description: Branchlets tomentose. Leaves alternate, up to 4-12 x 3-10 cm long, subcoriaceous, elliptic or elliptic-obovate, apex rounded or retuse, dark green above, paler beneath. Flowers white or creamy-white, slightly fragrant, in axillary clusters; pedicels drooping, fulvous pubescent. Calyx c. 6 cm long, campanulate hairy. Corolla c. 9 mm long, lobes 5, narrowly lanceolate. Stamens 5; staminodes 5. Berries greenish-yellow, pubescent when young, c. 3 cm across.

Habitat: Evergreen to semi-evergreen forest preferably in openings.

Uses: Important food source for wild animals such as Hanuman Langur etc.

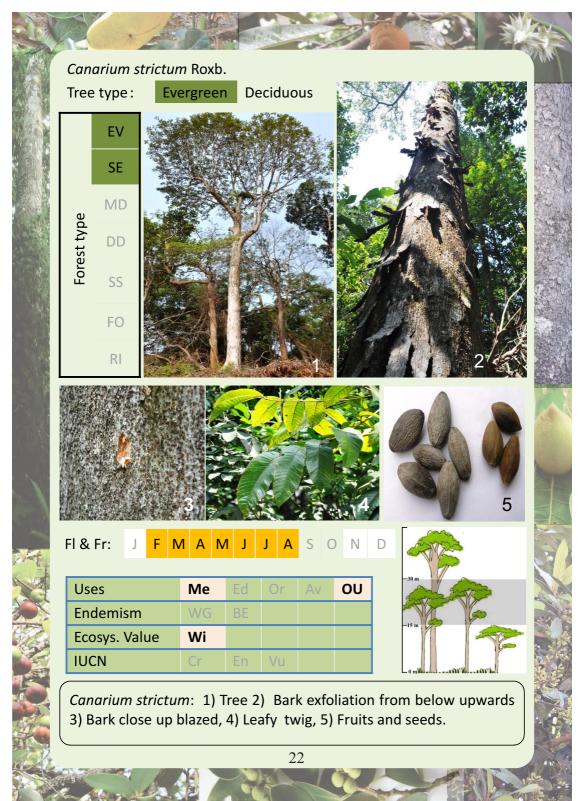
Distribution in	Uttara K	Kannada
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B. Trees With Fragrant Wood





CANARIUM STRICTUM Roxb.

Family: Burseraceae

Kannada name: Karidhupa

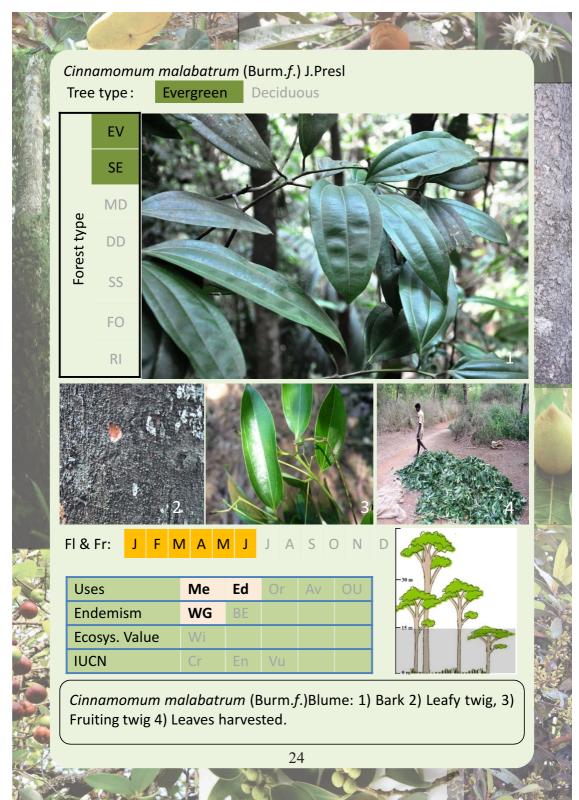
Eng: Black dammar

Field Identification: Bark exfoliating from down up normally. Inner yellow wood has fragrant aroma when blazed. Exudes slowly a fragrant gummy sap in injured areas which turn black and hard on exposure. (This type of exfoliation of bark is also seen in *Apananthe cuspidata* and *Prunus ceylanica*, which have simple leaves).

Botanical description: Tall, evergreen trees; deciduous in drier places. Young branches rufous-tomentose. Leaves imparipinnate, slightly thick, to 60 cm long; leaflets 3-7 pairs, 10-20 x 4.5-8.7 cm; margins finely serrate or entire, unequal-sided at base. Flowers in short branched axillary panicles. Sepals 3-lobed, rusty hairy outside. Petals 3, 6-10 mm long. Stamens 6. Drupes 3.7-5 x 1.5 cm, ellipsoid or ovoid; stony hard.

Habitat: Frequent in evergreen to semi-evergreen forest.

Uses: Resin called as black dammar from stem used in manufacture of varnishes. Resin is used medicinally for bone fracture & as incense Also many insects such as stingless bees collect the resin. Light wood for packing cases and match industry and for boards



CINNAMOMUM MALABATRUM (Burm.f.) J.Presl

Family: Lauraceae

Kan: Lavanga patre, Dalchini

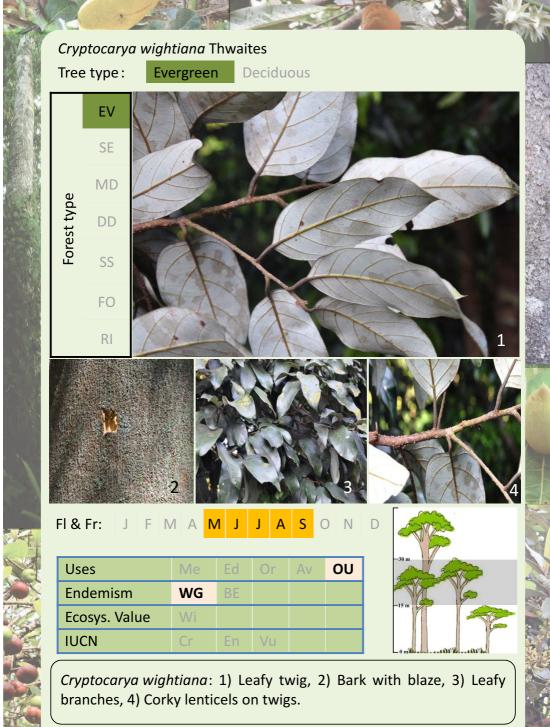
Field Identification: Trees with aromatic bark and leaves; leaves 3-ribbed.

Botanical description: Leaves up to 28 x 8 cm, opposite, elliptic oblong, obtuse, mostly 3 ribbed, sometimes more. Inflorescence a paniculate cyme, axillary and terminal, usually shorter than leaves. Flowers bisexual. Perianth funnel shaped, tube short; lobes 6. Stamens 9 in 3 whorls. Ovary enclosed in perianth tube. Fruit is a berry, oblong, up to 2.5 cm long.

Habitat: Evergreen to semi-evergreen forest.

Uses: The bark and leaves of this species are used as a spice for flavoring food.

Distribution in Uttara Kannad	a
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CRYPTOCARYA WIGHTIANA Thwaites

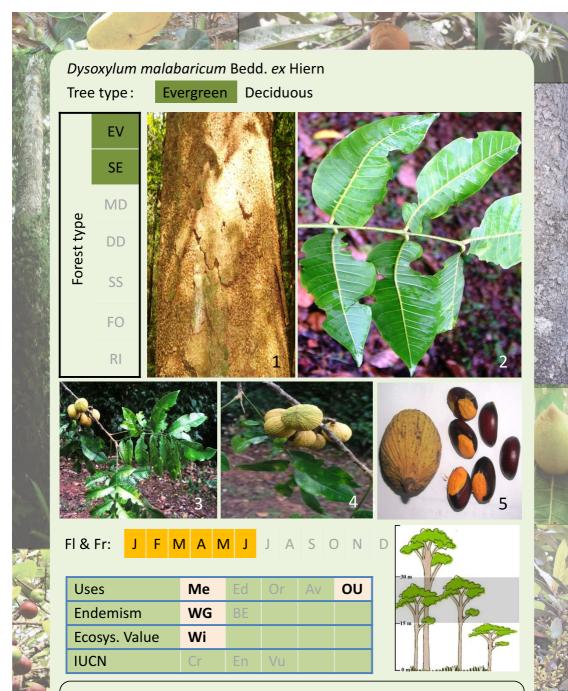
Family: Lauraceae

Synonym: Cryptocarya bourdillonii Gamble

Field Identification: Bark reddish brown with copious lenticels; inner wood fragrant when blazed; Twigs with large corky lenticels. Leaf whitish-glaucous underneath.

Botanical description: Young parts rusty pubescent. Leaves alternate, 8-17 x 3-8 cm, ovate or elliptic-oblong, shortly acuminate at apex, rounded to subacute at base, dark green above, whitish-glaucous beneath. Panicles up to 12 cm long, fulvous pubescent. Fruits up to 1.5 cm in diam., globose.

Habitat: Occasional in evergreen forest along Ghats.



Dysoxylum malabaricum: 1) Bark, 2) Leaflets with domatia in nerve axils, 3) & 4) Fruiting twig, 5) Fruit and seeds.

DYSOXYLUM MALABARICUM Bedd. ex Hiern

Family: Meliaceae

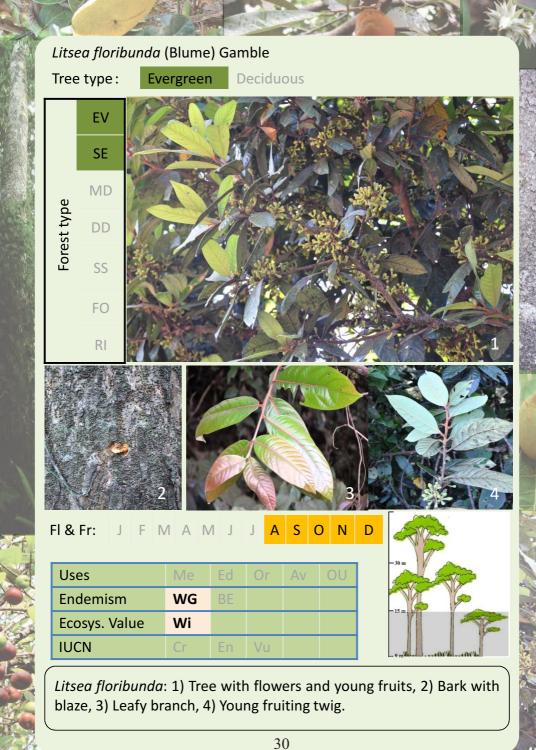
Kannada name: Bili Devadari

Field Identification: Large evergreen trees with grey-flaky barks with white warts. Wood with strong cedar smell. Leaves thick and domatia in the axils of lateral nerves. Nerves very prominent beneath.

Botanical description: Leaves imparipinnate, up to 35 cm long; leaflets 4-5 pairs, more sub-opposite than alternate, 8-20 x 4-8 cm, elliptic-oblong, base oblique, apex acuminate, puberulous when young; rachis angled. Flowers greenish-yellow, fragrant, in axillary panicles. Calyx short, finely pubescent outside, deeply 4-lobed. Petals 4, linear-oblong. Staminal tube urceolate, 4-angled; anthers 8. Disc cupular, crenulate. Ovary 4-locular. Capsules c. 5-6 cm across, pyriform, verrucose, bright yellow when ripe with 4-longitudinal furrows. Seeds 3-4, 3-gonous.

Habitat: Rare in evergreen to semi-evergreen forest.

Uses: Leaves eaten by Hanuman Langur. Hornbills use large trees for nesting. Wood used for construction and for high graded plywood.



LITSEA FLORIBUNDA (Blume) Gamble

Family: Lauraceae

Synonym: Litsea wightiana Hook. f. p. p.

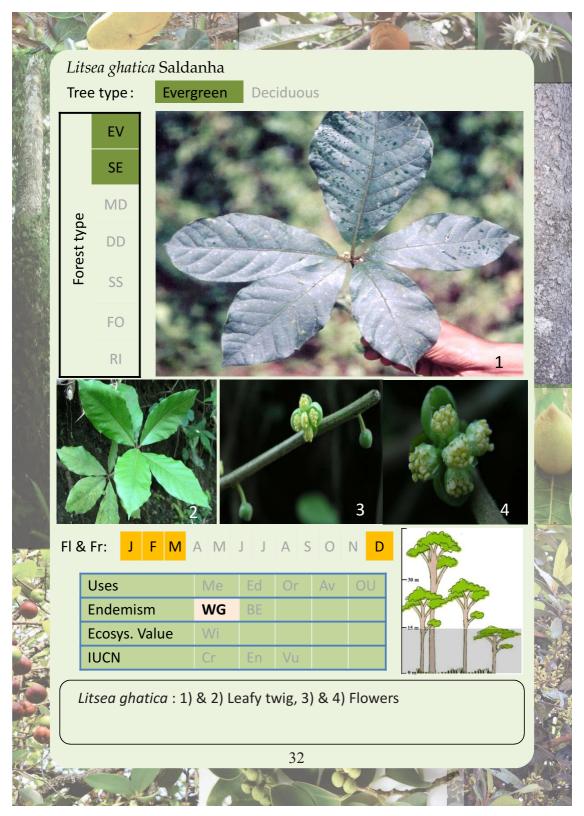
Field Identification: Branchlets, and young leaves often reddish clothed with dense rusty tomentose. Bark fragrant when blazed; inner wood dirty yellow.

Botanical description: Leaves alternate, variable in size with up to 25 x 10 cm, elliptic or obovate-oblong, coriaceous, acute to acuminate at apex. Umbels in racemes, fulvous tomentose. Stamens 12. Fruit a berry up to 2 cm long, oblong, seated on the cupular perianth-tube.

Habitat: Frequent in evergreen forest.

Uses: Wild animals such as Hanuman Langur feed on young flush. Hornbills feed on fruits.

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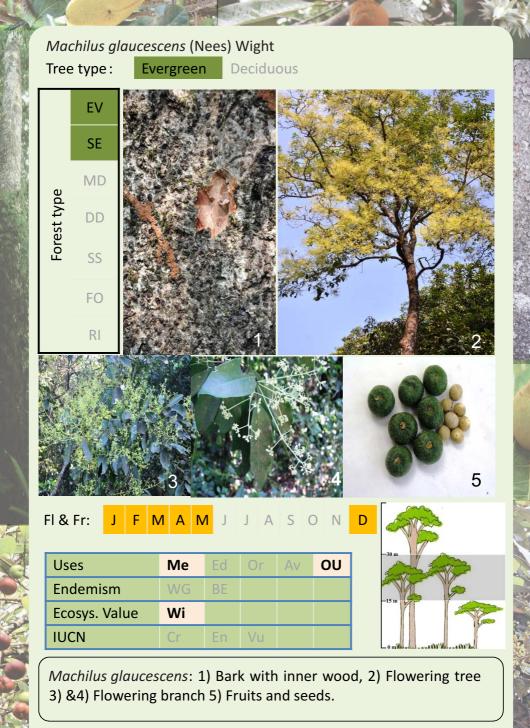
LITSEA GHATICA Saldanha

Family: Lauraceae

Field Identification: Young branches tomentose. Leaves large obovate and subverticillate towards the tips of the branchlet. Inner wood fragrant when blazed.

Botanical description: Leaves 5-22 x 2.5-11 cm, obovate to oblanceolate, base cuneate, abruptly acute or acuminate at apex, grey pubescent beneath; lateral nerves distinctly looped near the margins on lower side. Flowers in lateral and axillary umbels, greenish-white to yellow. Perianth lobes 6. Berries c. 1 cm across, globose, turning black.

Habitat: Evergreen to semi-evergreen forest.



MACHILUS GLAUCESCENS (Nees) Wight

Family: Lauraceae

Synonym: *Persea macrantha* (Nees) Kosterm

Kannada names: Gulmavu

Field Identification: Bark grey, white or dark lenticellate; glutinous inside. Wood fragrant and mucilaginous when blazed. Leaves glacous beneath, fragrant when crushed.

Botanical description: Large evergreen trees. Leaves alternate, 18 x 8 cm, appearing clustered at ends of branchlets, elliptic-oblong, pale green, without any hairs, fragrant when crushed, base slightly oblique, coriaceous; Stalk of leaf 3-4 cm; Inflorescence a panicle, near the end of branches. Perianth c. 6 mm long, silky pubescent, greenishyellow, clothed with soft and short hairs, lobes 6. Fruit is a berry, globular, smooth, 2 cm across, green, dotted with white, turning black on ripening.

Habitat: Evergreen to semi-evergreen forest.

Uses: Important food resource for Lion Tailed Macaque, Hanuman Langur etc. Bark is used medicinally and for Agarbatti industry; powdered bark anti-inflammatory and antirheumatic; wood used for construction purposes.

Distribution	in	Uttara	Kannada
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REINWARDTIODENDRON ANAMALAIENSE (Bedd.) Mabb

Family: Meliaceae

Synonym: Aglaia anamallayana (Bedd.) Kosterm

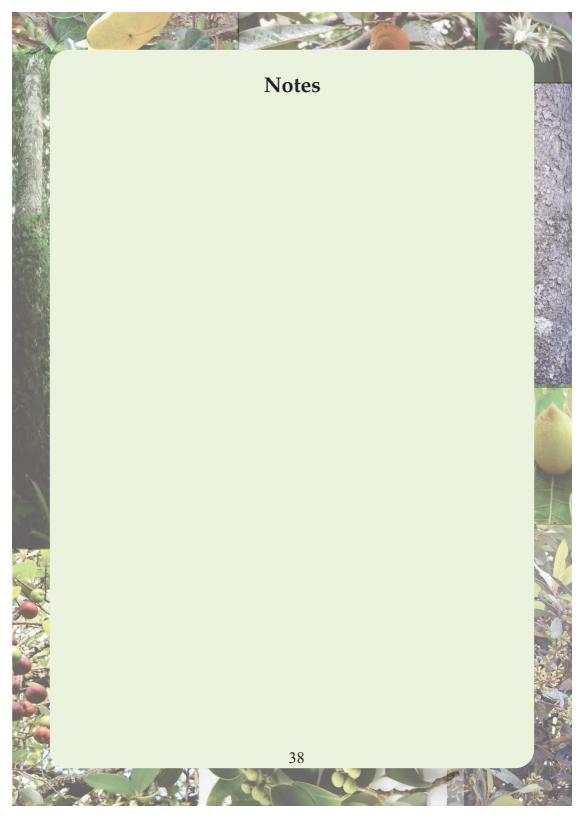
Kannada name: Chigatmari

Field Identification: Differs from other *Aglaia* sp in having yellow inner bark. Bark with aromatic odour. Leaves normally mottled with white dots; domatia in nerve axils.

Botanical description: Moderate sized, evergreen canopy trees. Leaves 10-25 cm long, imparipinnate; leaflets 4-7, up to 15×5.5 cm, alternate, elliptic-lanceolate, acuminate, narrowed into short petiole; domatia beneath in the axils of primary nerves. Flowers in axillary fascicled spikes. Sepals 5, ciliate on margins. Petals 5, 5 mm long, white, longer than sepals. Stamens in tube; anthers in two rows. Ovary globose. Fruit a grape-sized berry, c. 1.8 cm long, tomentose, oblong, 1-2 seeded.

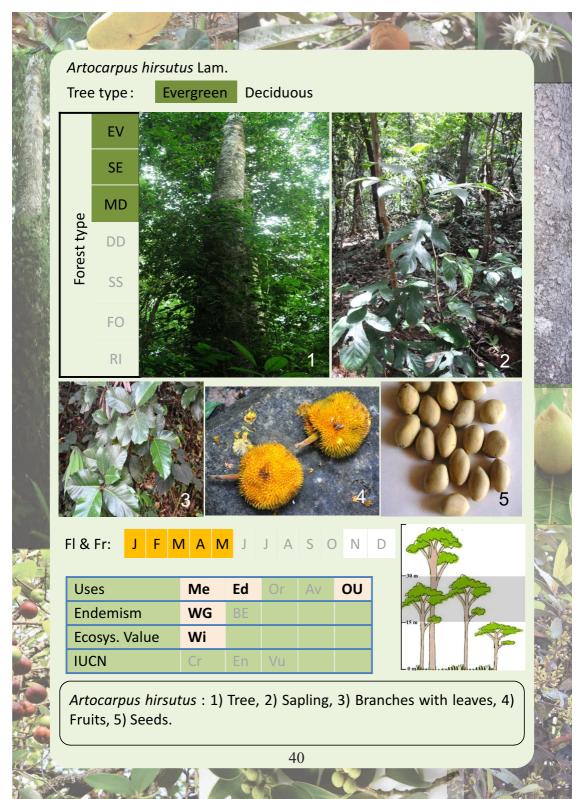
Habitat: In evergreen forests.

Uses: Fruits pulpy, of value for wild animals.



C. Trees With Stem Exuding Milky Latex





ARTOCARPUS HIRSUTUS Lam.

Family: Moraceae

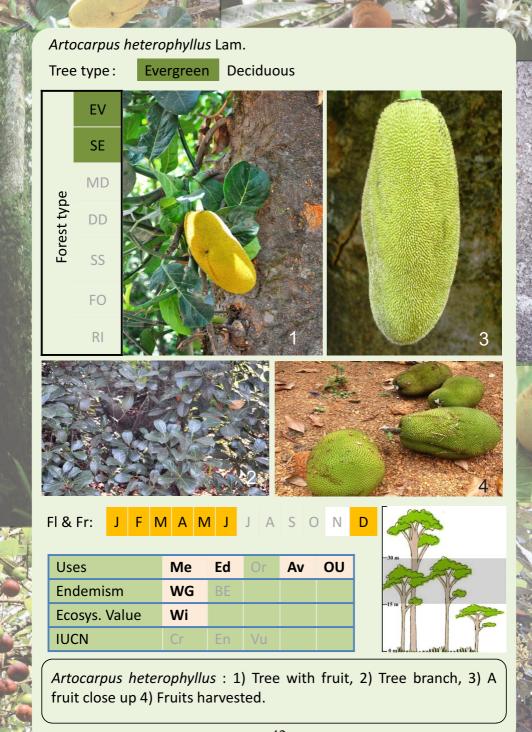
Kannada name: Hebbalasu

Field Identification: Lofty, evergreen trees with milky latex. Wood yellowish inside. Leaves in saplings deeply lobed.

Botanical description: Branchlets strigose with tawny hairs. Petiole 3 cm long; leaf blade broadly elliptic-ovate or lanceolate, acuminate at apex, rounded at base, rusty pubescent beneath; to 25×14 cm; entire or sometimes deeply pinnatifid and serrate; lateral nerves about 10 pairs. Inflorescence axillary. Male flowers: sepals 2, connate below. Stamens 1. Female flowers: Perianth tubular, confluent below with the receptacle. Syncarp (multiple fruit) 15×10 cm, cylindrical-ellipsoid, echinate with long processes, orange when ripe. Seeds numerous, ovoid.

Habitat: Evergreen to semi-evergreen forest.

Uses: Fruits edible and with medicinal properties. Many wild animals such as Lion-tailed Macaque, Bonnet Macaque, Indian Giant Squirrel and Slender Loris feed on this. Elephants feed on fruits and tender shoots.



ARTOCARPUS HETEROPHYLLUS Lam.

Family: Moraceae

Synonym: *A.integrifolia auct. non* L.

Kannada name: Halasu

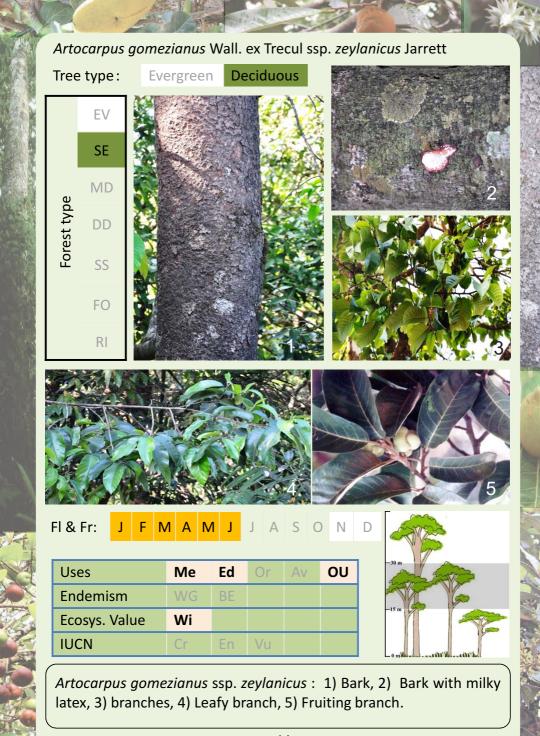
Field Identification: Evergreen trees with milky latex

Botanical description: Leaves glabrous, stipules large, 8 x 4 cm, lanceolate covering terminal bud. Petiole up to 2.5 cm long; leaf blade elliptic or obovate, obtuse to sub-acuminate at apex, cuneate at base, to 20 x 8 cm. Inflorescence cauliflorous, from the main trunk and old branches, enclosed in spathaceous deciduous sheaths; male heads clavate-oblong, up to 7 cm long; Female flowers: Anthocarps pyramidal with flattish, acute tips. Style exerted, clavate. Syncarp (multiple fruit) large with short, hard echinate processes. Seeds enclosed in the yellow fleshy, enlarged, edible perianth.

Habitat: Rare in evergreen to semi-evergreen forest; common in cultivation.

Uses: Fruits and seeds used as food by forest tribes. Favourite of Lion-tailed Macaque, Bonnet Macaque, Elephant, Indian Gaint Squirrel and Slender Loris feed on it.

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ARTOCARPUS GOMEZIANUS Wall. ex Trecul ssp. ZEYLANICUS Jarrett

Family: Moraceae

Synonym: *A. lakoocha* auct. non Roxb.

Kan: Waate, Wonte

Field Identification: Yellowish brown inner wood. Milky latex exuded when blazed. Inner bark reddish. Branchlets densely grey tomentose. Fruits smaller, irregular.

Botanical description: Large deciduous trees. Branchlets densely grey- or rusty-tomentose. Bark rough, grey. Stipules small, ovate; petiole to 2.5 cm long; leaf blade ovate-lanceolate, acuminate, rounded-truncate, to 25 x 12 cm. Lateral nerves 8-12 pairs. Inflorescence globose, axillary, solitary or in pairs; anthers exserted. Syncarp smooth, fleshy, irregularly lobed, 5-8 cm in diameter. Male flowers: Sepals on sub-sessile receptacles. Sepals 3-4, triangular, truncate, puberulous. Stamen 1. Fruit oblong, irregularly globose, 5-7.5 cm in diameter, lobulate, minutely velvety, yellow when ripe; seeds oblong, flat.

Habitat: Occasional in semi-evergreen forest.

Uses: Fruits sour, used dry like tamarind. It has medicinal properties.

Distribution in	Uttara	Kannad	a
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Donella lanceolata: 1) Branches with fruits, 2) Twig with flowers and buds, 3) Fruit.

DONELLA LANCEOLATA (Blume) Aubrev

Family: Sapotaceae

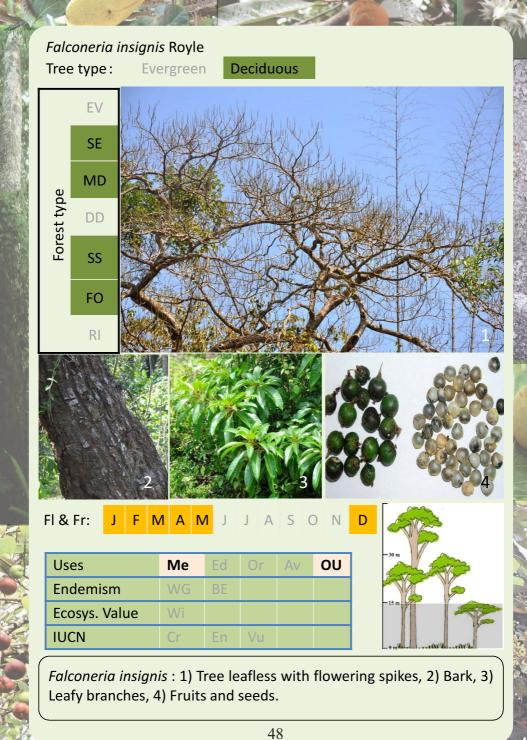
Synonym: Chrysophyllum roxburghii G Don.

Kannada name: Hale mara

Field Identification: Fairly large to medium trees with smooth, greyish bark and white latex. Wood yellow to red. Leaves with close parallel but indistinct secondary veins. Leaves similar to *Mimusops elengi* and *Calophyllum polyanthum* trees- but no vertical fiddures on bark. Leaf margins undulating.

Botanical description: Leaves to 5-16 x 3-6 cm, oblong or elliptic-lanceolate; young twigs and midrib beneath rufous hairy, margins undulate, base acute, apex caudate-acuminate, shining. Flowers greenish-white, many in axillary clusters. Calyx broadly companulate, densely ciliate. Corolla white orbicular. Berry 2.5-5 cm across, globose, obscurely angled, light green when ripe.

Habitat: Rare in evergreen to semi-evergreen forests. **Uses**: Fruits edible though sticky. Lion tailed Macaque reported to feed on fruits.



FALCONERIA INSIGNIS Royle

Family: Euphorbiaceae

Synonym: *Sapium insigne sensu* T. Cooke

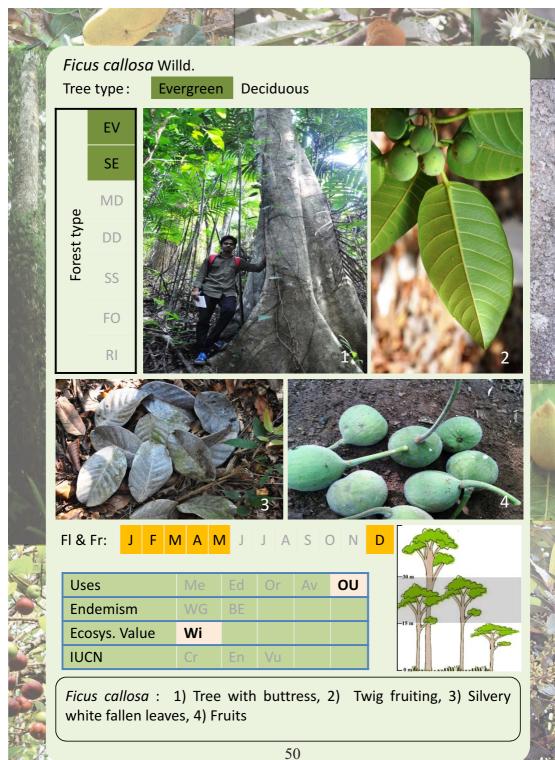
Field Identification: Shrubs to small trees with cracked bark; fissures rectangular. Thick milky latex is poisonous and acrid. Leaf petiole often pinkish, and biglandular below apex. Tree leafless while flowering.

Botanical description: Leaves alternate, up to 23 x 7.5 cm, slightly crowded at the ends of branches, elliptic-ovate or obovate, acute at apex, attenuate at base, crenate-serrate, glabrous.; petioles up to 5 cm long. Flowers appearing after leaf fall, apetalous, greenish, in simple terminal erect spikes.; female solitary. Calyx 2-lobed. Stamens 2. Ovary 2-3 celled. Fruit drupaceous, globose.

Habitat: Common on lateritic areas and streams.

Uses: Used in local medicines.

Distribution	in Uttara	Kannada
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FICUS CALLOSA Willd.

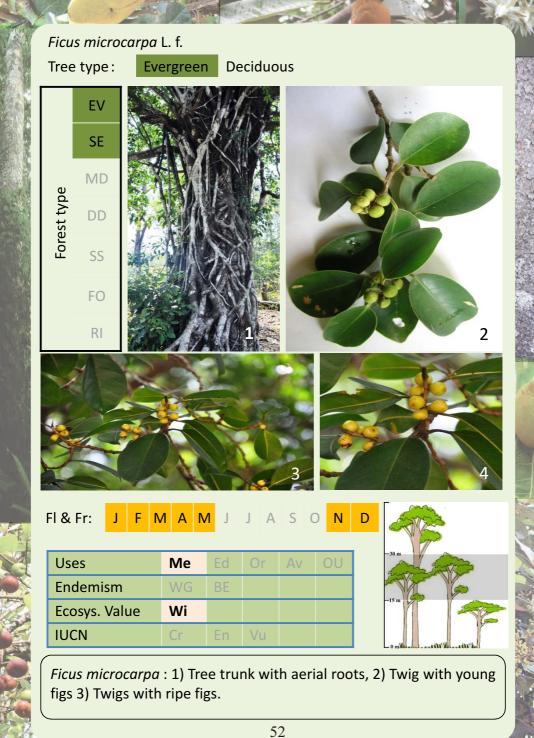
Family: Moraceae

Field Identification: Buttressed trees with somewhat watery latex from stem. Old fallen leaves on forest floor silvery-white. Branchlets warted. Lateral nerves prominent below with strong reticulation.

Botanical description: Leaves alternate, to 10-20 x 5-12.5 cm, ovate or oblong, abruptly acuminate at apex, acute or rounded at base, glabrous above, slightly pubescent beneath; petioles up to 5 cm long. Figs axillary, pedunculate, globose. Basal bracts 3, pubescent.

Habitat: Occasional in evergreen to semi-evergreen forest. **Uses**: Important food resource for wild animals such as Lion Tailed Macaques, Hanuman Langur etc. Various bats and birds (Hornbills, Barbets etc.) feed on fruits.

Distribution in Ut	tara Kannada
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FICUS MICROCARPA L. f.

Family: Moraceae

Synonym: Ficus retusa L.

Kannada name: Kirgoli mara, Pili mara.

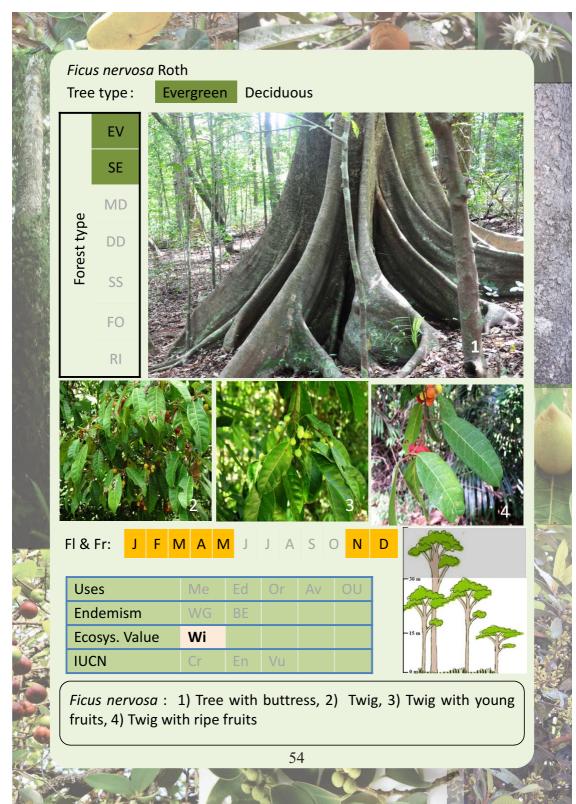
Field Identification: Trees with whip-cord like aerial roots and axillary figs. Leaves elliptic-obovate, rubbery with cuspidate tip.

Botanical description: Leaves up to 10 x 7.5 cm, ellipticobovate or ovate, narrowed into the petiole at base, coriaceous, glabrous shining above, paler beneath. Petioles up to 2 cm long. Figs in axillary pairs, sessile, depressed globose, up to 1 cm in diam., glabrous, yellowish when ripe.

Habitat: Evergreen to semi-evergreen forest and in sacred groves.

Uses: Important as food source for forest animals including Lion Tailed Macaques and birds like Hornbills.

Distribution	in Uttara	Kannada



FICUS NERVOSA Roth

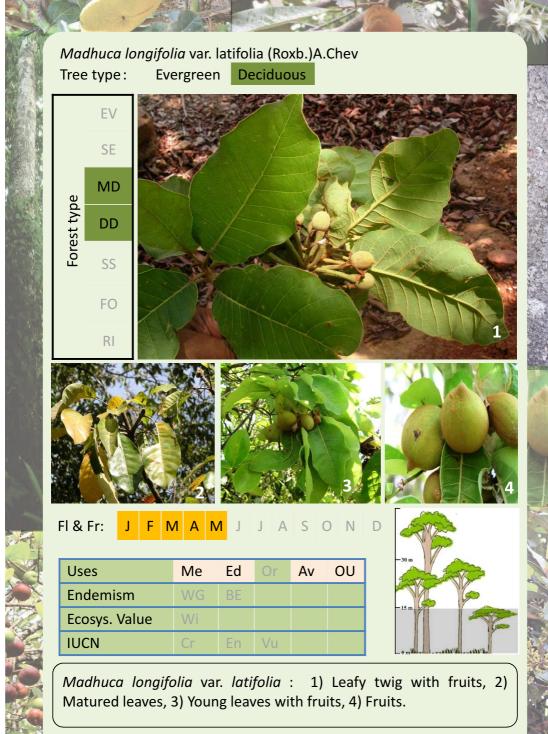
Family: Moraceae **Kan**: Nayatte

Field Identification: Trees with huge buttresses and copious milky white latex when blazed. Leaves with basal lateral nerves opposite.

Botanical description: Bark smooth grey, often mottled with black, young parts minutely appressedly pubescent. Leaves alternate, 9-16 x 4-8 cm, elliptic-lanceolate, base narrowed or rounded, apex abruptly acuminate, margins slightly undulate, revolute, shining on both surfaces, glabrous, lateral nerves 6-10 pairs, basal nerves opposite. Figs in axillary pairs, peduncled, subglobose, glabrous, 1.2-2 cm in diam., peduncles up to 1.5 cm long.

Habitat: Evergreen forests, frequently riverine.

Uses: Important source of food for wild animals and birds.



MADHUCA LONGIFOLIA var. latifolia (Roxb.) A.Chev

Family: Sapotaceae

Synonym: *Bassia latifolia* Roxb.

Kannada name: Kadippe, Haltambri, Mahua

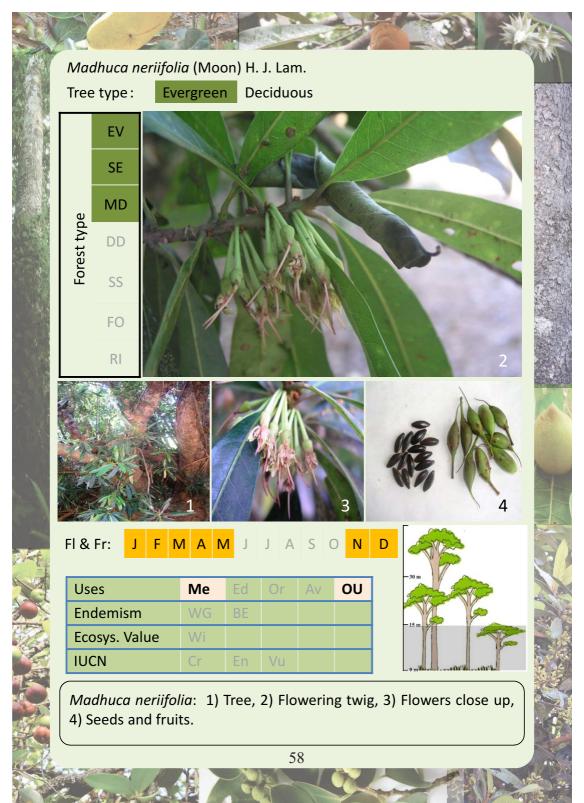
Field Identification: Bark cracked, dark, inner bark red with milky latex; young parts rusty tomentose (orangebrown tomentose in *M. bourdillonii*).

Botanical description: Leaves clustered at the ends of branches, up to 15×10 cm, broadly elliptic to ovate, base rounded, apex usually acute, densely woolly when young. Flowers fascicled in dense clusters at the end of branches along with leaves; pedicels 3-5 cm long, pubescent. Calyx lobes 4, rusty tomentose. Corolla creamy, campanulate; lobes 8. Stamens 20-30 in 3 rows. Berries 2.5-5 cm, fleshy, rusty tomentose. Seeds 1-4, brownish-black.

Habitat: Frequent in moist deciduous forest.

Uses: The flowers are edible. Seeds also yield edible oil. Timber is used for construction purpose. Flowers and fruits eaten by bats. Flower buds, flowers and ripe fruits eaten by Hanuman Langur. Sloth Bears feed on flowers and fruit.

Distribution	in	Uttara	Kannada
DISCINGUION		O ttui u	Nulliauu



MADHUCA NERIIFOLIA (Moon) H. J. Lam.

Family: Sapotaceae

Synonym: *Bassia neriifolia* Moon. **Kannada name:** Naanilu mara

Field Identification: Narrow long leaves compared to other *Madhuca* sp., and mostly riverine.

Botanical description: Bark scaly, dark, branched. Leaves to 24 x 6 cm, oblong-elliptic to narrowly oblong-lanceolate, acute to obtuse at apex, base cuneate, coriaceous, glabrous and shining above. Flowers yellowish-white in axillary fascicles near the ends of branches; pedicels 2 cm long, drooping. Corolla tube densely rufous-hairy on both sides; lobes 6, oblong. Ovary glabrous. Berries up to 3 cm long, fusiform.

Habitat: Common riverine trees in evergreen to moist deciduous forest.

Uses: Fruits used for medicinal purpose. Host for many orchids and other epiphytes.

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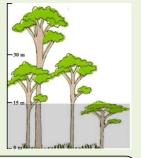






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Mammea suriga: 1) Tree branches 2) Bark blazed to show inner red wood, 3) Twig, 4) Fruits and seeds.

MAMMEA SURIGA (Buch.-Ham. ex Roxb.) Kosterm

Family: Calophyllaceae

Synonym: *Mammea longifolia* (Wight *ex J.* Graham) Planch.

& Triana; Ochrocarpus longifolius (Wight) T. Anderson

Kannada name: Suragi

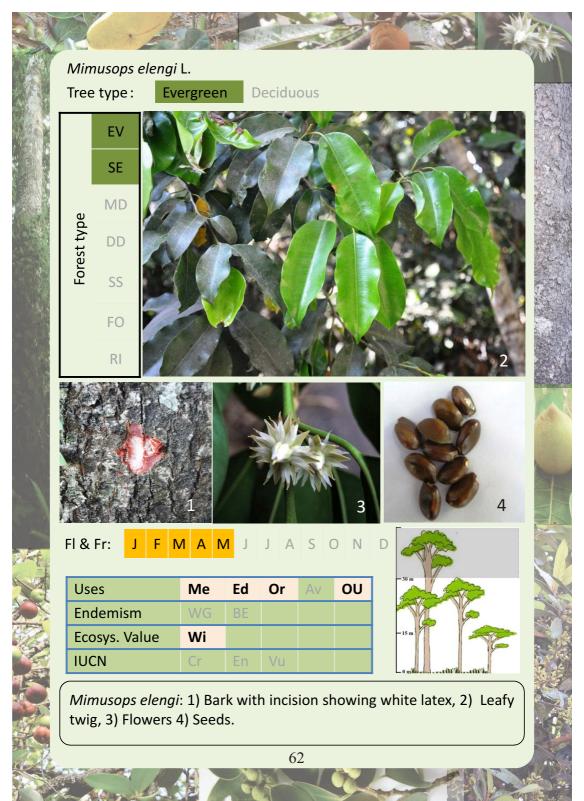
Field Identification: Bark scaly; often covered with black patches of lenticular like markings; inner bark thick, reddish, exuding red gum. Leaves thick, shining, oblong to oblong-lanceolate.

Botanical description: Medium tree. Leaves opposite or in whorls of 3, elliptic-oblong, acuminate, up to 15-20 x 5-6 cm, glaucous beneath, coriaceous, nerves numerous, near parallel but finely reticulate, midrib strong. Flowers polygamous pedicellate, fragrant, in dense fascicles in axils of fallen leaves, or on old wood, white streaked with red. Petals 4, thin. Stamens many, yellow. Fruit a berry, c. 2.5 cm long, pointed, ovoid, 1-seeded.

Habitat: Evergreen to semi-evergreen forests mostly seen in lower altitudes; in coastal laterite hills; coastal sacred groves

Uses: Flowers used for making garlands and used for medicinal purpose. Timber used for building purpose.

Distribution	in l	Jttara	Kannada
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MIMUSOPS ELENGI L.

Family: Sapotaceae

Kannada name: Ranjalu, Pagadi mara

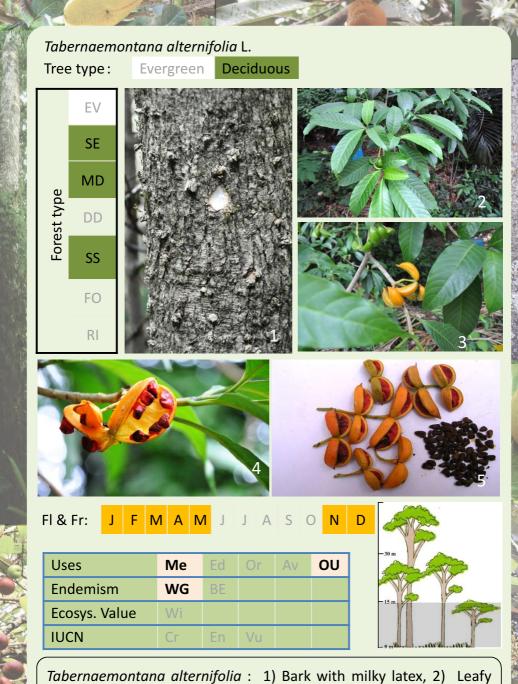
Field Identification: Large evergreen tree with cylindrical trunk and milky latex. Bark dark brown to grey with shallow vertical fissures. Wood red. Leaves with numerous faint lateral nerves at right angle to midrib. (Also see *Calophyllum polyanthum and Chrysophyllum roxburghii*).

Botanical description: Leaves broadly ovate, up to 12.5 x 6.5 cm, coriaceous, shortly acuminate, sub acute at base, glabrous, dark green shining above, paler beneath, margins slightly undulating; petioles to 2.5 cm long. Flowers axillary, clustered or solitary, white sweet scented, c. 1.8 cm across, star like. Petals 8, divided to the base into 3 segments. Stamens 8, alternate with the subpetaloid fimbriate staminodes. Berries 2-2.5 cm long, ovoid, yellow when ripe.

Habitat: Evergreen to semi-evergreen forest.

Uses: The fruit edible; oil from the seeds is employed by locals for cooking, burning and in medicine. Fragrant flowers are made into necklaces which retain their fragrance even when dry. Important food and nesting sites for forest animals and birds. Forest tribes of Kerala eat fruits and use seed oil. Hornbills and Hanuman Langur feed on fruits.

Distribution	in	Uttara	Kannada
DISCINGUION		O ttui u	Nulliauu



Tabernaemontana alternifolia: 1) Bark with milky latex, 2) Leafy twig, 3) Fruiting twig, 4) Fruits split open, 5) Fruits and seeds.

TABERNAEMONTANA ALTERNIFOLIA L.

Family: Apocynaceae

Synonym: Ervatamia heyneana (Wall.) T. Cooke

Kan: Maddarasu, Madle mara.

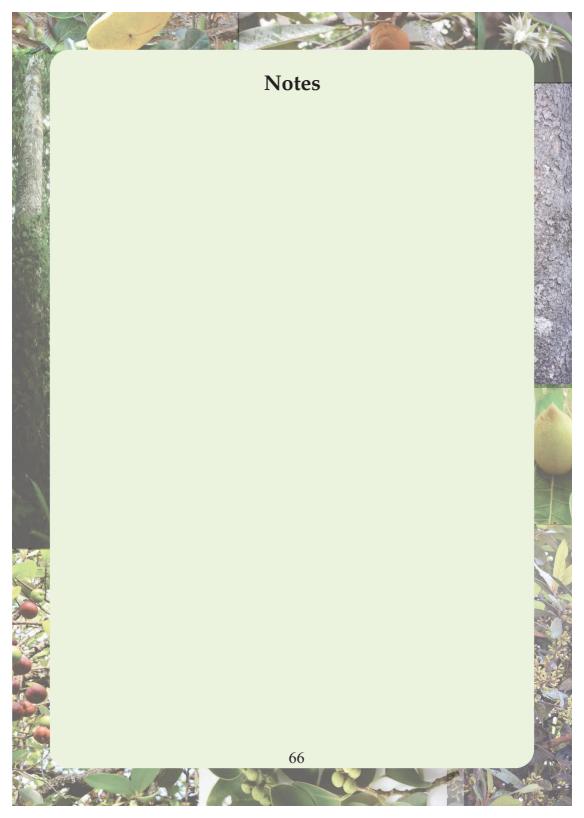
Field Identification: Very soft-wooded shrubs to small trees with milky latex and corky, grey bark having longitudinal fissures and cracks. (Similar to *Holarrhena antidysentrica*, but leaves in latter bigger, wider, with base rounded and unequal sided).

Botanical description: Leaves opposite, to 18 x 6 cm, elliptic-lanceolate, acuminate at apex, acute at base, thinly coriaceous, glabrous, dark green above, paler beneath. Flowers white, in terminal or lateral corymbose cymes. Calyx c. 5 mm long, glabrous; lobes c. 2 mm long. Corolla falling early; tube cylindric; lobes broad falcate, with crispid margins. Follicles 2.5-4.5 cm long, orange-yellow, beaked.

Habitat: Forest fringes, openings, and scrub jungles.

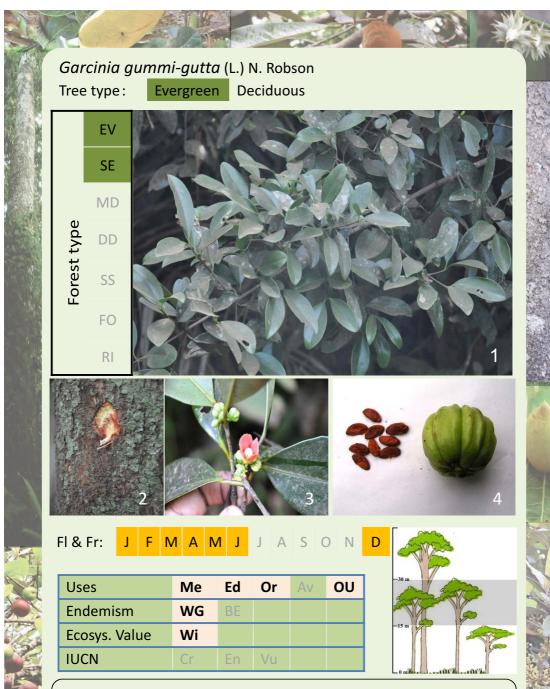
Uses: Used medicinally for microbial infections, diabetes, renotoxicity etc. Anticancer alkaloid camptothecin discovered, stem having most content. Protease from latex has food and biotechnological applications.

Distribution in	Uttara	Kannad	a
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D. Trees With Stem Exuding Watery or Coloured Sap/Latex





Garcinia gummi-gutta: 1) Branch with leaves 2) Bark with yellow exudate, 3) Flowering twig, 4) Seeds and fruit.

GARCINIA GUMMI-GUTTA (L.) N. Robson

Family: Clusiaceae

Synonym: Garcinia cambogia Desr.

Kannada name: Uppage

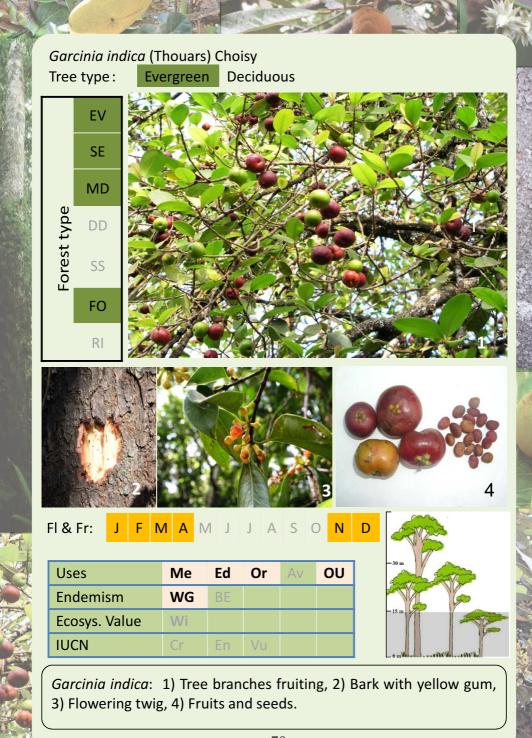
Field Identification: Trees with bright yellow sap; branches horizontal to drooping. Differs from *G. talboti* which has yellow inner bark and wood when blazed. It differs from *G.morella* which has orange-yellow sap, quadrangular stems, chartaceous leaves and easily discernible prominent mid and lateral nerves whereas in *G. gummi-gutta* veins embedded.

Botanical description: Leaves simple, opposite 7-15 x 2-7 cm, broad, elliptic-obovate, acute or obtuse at apex, dark green above, paler beneath, lateral nerves parallel; petioles up to 2 cm long. Male flower fascicled, in axils of fallen leaves; sepals 4, thick and fleshy, outer shorter than inner. Petals 4, concave, thick, red and fleshy. Female flowers larger than males. Staminodes in an irregular ring. Berries up to 8 cm in diam., fleshy with 8-10 groves, 6-8 seeded.

Habitat: Evergreen to semi-evergreen forest

Uses: Fruits as condiments for flavoring curries in place of Tamarind. Also used medicinally for many diseases. Hydroxy-citric acid from fruits in high demand for weight loss and fat metabolism. Wild animals such as Lion Tailed Macaque etc., feed on these.

Distribution in Ottara Namiaus	Distribution	in	Uttara	Kannad	a
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GARCINIA INDICA (Thouars) Choisy

Family: Clusiaceae

Kannada name: Murugalu, Kokum

Field Identification: Branches drooping. Trees with

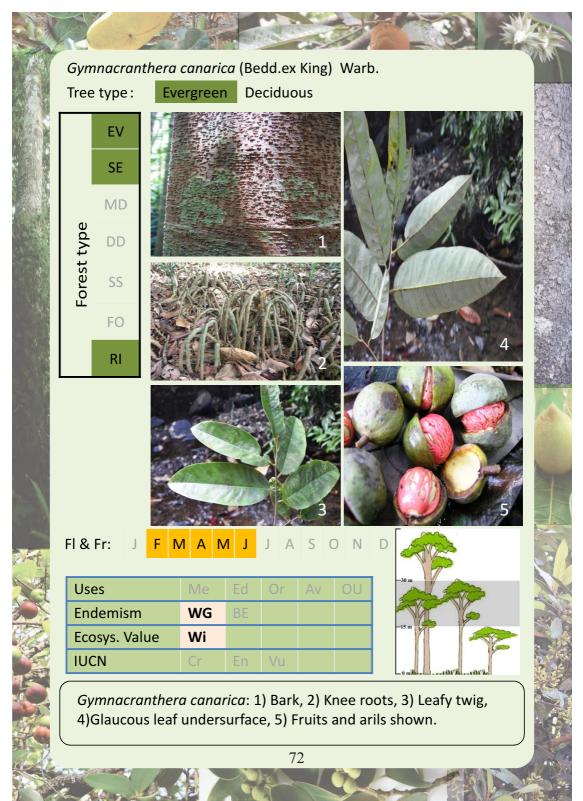
yellow sap or gum.

Botanical description: Leaves simple, opposite, up to 5-10 x 4-6, ovate or obovate or elliptic oblong, rounded, acute or abruptly acuminate at apex, narrowed at base. Flowers polygamous. Male flowers 4-8 in axillary or terminal fascicles. Sepals 4, outer ones smaller than inner. Petals 4. Stamens on short column. Female flowers sessile or subsessile. Stigmas 4-8 rayed. Berry globose, up to 4 cm in diam., deep purple when ripe.

Habitat: Open areas in semi-evergreen and moist deciduous forest.

Uses: Edible, the rind used to prepare cooling beverages. Kokum butter extracted from seeds used for cooking, medicine, skin cracking, cosmetic products etc. Hanuman Langur and Bonnet Macaque feed on fruits and shoots.

Distribution in Uttara Kannada



GYMNACRANTHERA CANARICA (Bedd ex. King) Warb.

Family: Myristicaceae

Synonym: Gymnacranthera farquhariana (J. Hooker &

Thomson) Warb.

Kannada name: Pindi, Gandpatre, Jaddipatre

Field Identification: Warty lenticelled knee roots (loop like breathing roots) growing around the base of the tree. Bark rough with warty lenticels.

Botanical description: Leaves alternate, up to 25 x 10 cm, acuminate at apex, glaucous beneath. Male flowers yellow, in axillary panicles. Perianth usually 4-lobed. Anthers 6-12, free at apex and adnate to the column by their backs. Ovary stigma sessile. Fruit up to 3 cm in diam.; pericarp fleshy, aril laciniate.

Habitat: Rare in swampy areas of evergreen forests.

Distribution in Uttara Kannada

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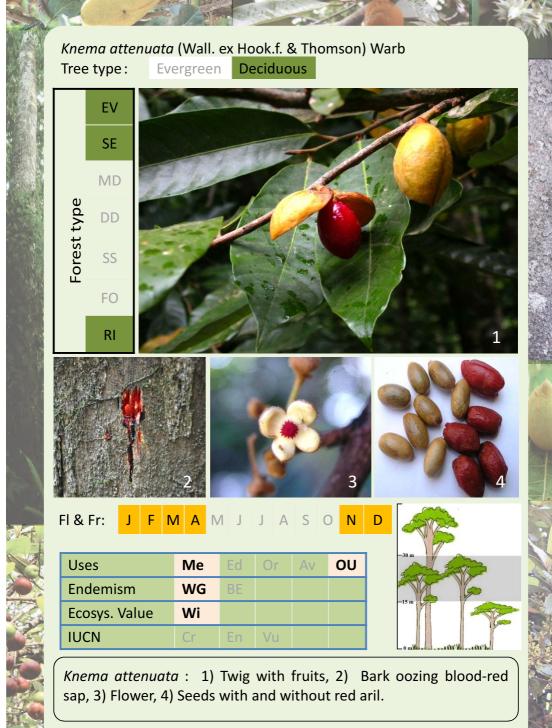
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KNEMA ATTENUATA (Wall. ex Hook.f. & Thomson) Warb

Family: Myristicaceae

Kannada name: Hedaglu, Hedmangla, Raktamara

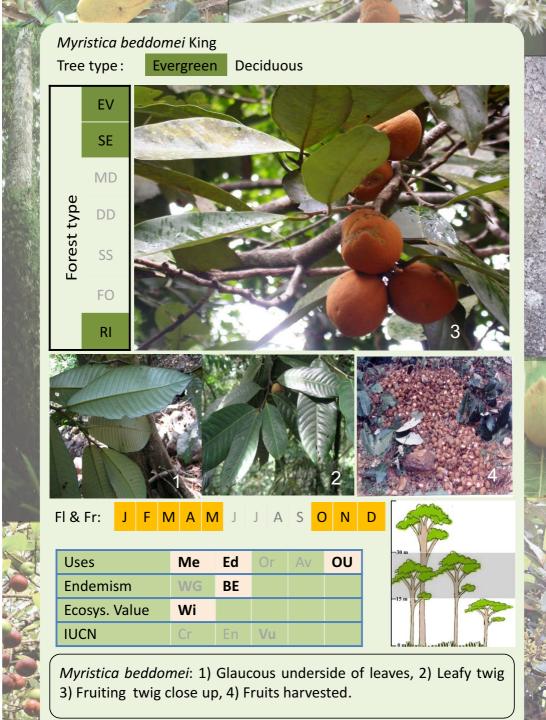
Field Identification: Trees with red sap from bark. Branches horizontal or drooping. Branchlets rusty-tomentose. Differs from *Myristica malabarica* in having horizontal branches, broader and thinner leaves, absence of stilt roots and have smaller fruits, dark arillate seed, laciniate only at the apex.

Botanical description: Leaf alternate, blade 12-22 x 4.5-7 cm, oblong-lanceolate, acuminate, acute to rounded at base, glabrous and shining above, white–glaucous beneath. Male flowers obovate-globose, in 3-6-flowered shortly pedunculate axillary umbels; Perianth, brown, stellate-tomentose outside, glabrous and pink inside; Female flowers in umbels, subsessile or sessile. Fruit oblong-ovoid, to 3.5-4 x 1.5-2 cm, abruptly and shortly pointed, densely clothed with rusty tomentum when young; aril brilliant crimson, entire, except towards apex. Seed narrowly ovoid.

Habitat: Evergreen to semi-evergreen forest.

Uses: With prolific fruiting it is an important food resource for wild animals and birds. Hanuman Langur and Bonnet Macaque feed on fruits; Nilgiri Langur on flowers, leaves and fruits.

Distribution in Uttara Kannad	Distribution	in Uttar	a Kannada
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MYRISTICA BEDDOMEI King

Family: Myristicaceae

Synonym: *Myristica dactyloides* auct non Gaertn.

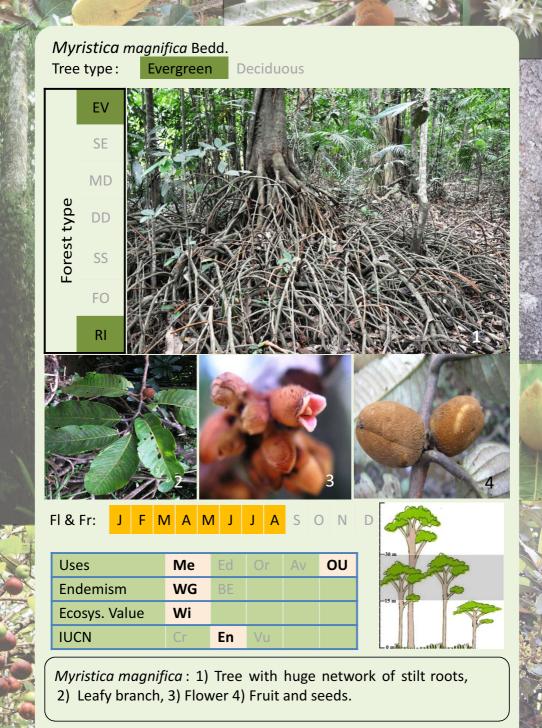
Kannada name: Kadu Jajikai, Hedpatre

Field Identification: Medium sized trees with red sap from the bark. Leaves thicker and larger than *M. malabarica*. Tree rarely with stilt roots.

Botanical description: Bark smooth, grey to brownish grey. Leaf blade 15-25 x 6.5-12 cm; elliptic to oblong-lanceolate, leathery, shining above, dull, glabrous, and glaucous beneath, bluntly acute at apex, rounded or acute at base. Female flowers sessile, in few flowered axillary cymes. Perianth glabrous-urceolate, expanded below the 3 spreading ovate teeth, pubescent outside. Anthers completely connate and not producing beyond the staminal column; Fruits to 6x4 cm, subglobular, pericarp powdery-brown. Seed globose, smooth; aril red, fleshy, extending to the apex.

Habitat: Occasional in evergreen to semi-evergreen forests.

Uses: Aril is the main commodity of trade as adulterant for *M. malabarica*, and also has medicinal properties; good shade tree in cardamom plantations. Hornbills, Langurs etc. feed on fruits/arils.



MYRISTICA MAGNIFICA Bedd.

Family: Myristicaceae

Synonym: *Myristica fatua* Houtt.

Kannada name: Gandpatre, Ramanadike

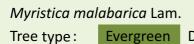
Field Identification: Large trees having base of trunk furnished with thick broadly looping aerial roots (similar to mangrove) surrounding the tree. Bark with red watery sap. Leaves very thick, silvery-glaucous beneath.

Botanical description: Branchlets covered with mealy rusty tomentose. Leaves alternate, elliptic to obovate-oblong, up to 60×20 cm, acute at apex, acute or rounded at the base, coriaceous, silvery glaucous beneath; lateral nerves reddish-coloured and prominent beneath. Male flowers in dense axillary clusters, dense rusty tomentose. Fruits to 8 x 5 cm, obovoid, with a shallow longitudinal sutural groove, brown pubescent.

Habitat: Very rare in *Myristica* swamps along streams in dense evergreen forest.

Uses: Hornbills, Langurs, Lion Tailed Macaque etc. feed on fruits/aril. Malabar Gaint Squirrel and Malabar Spiny Door Mouse feed on seeds.

Distribution in Uttara Kannada













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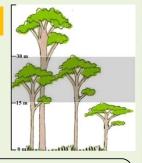




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Myristica malabarica: 1) Tree with stilt roots, 2) Twig, 3) Fruits, 4) Flowering twig, 5) Open fruit with arillate seed, 6) Fruit pericarp discarded in forest after separation of seed.

MYRISTICA MALABARICA Lam.

Family: Myristicaceae

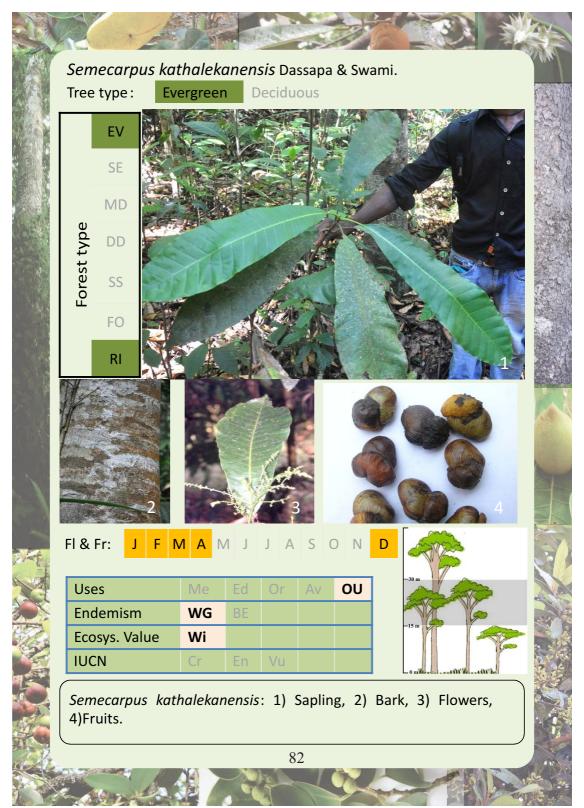
Kannada name: Rampatre.

Field Identification: Medium to large trees with red sap from the bark; stilt roots often present. Fruit elongate, aril yellow, laciniate aril. (Leaves are narrower than *M. dactyloides leaves*).

Botanical description: Leaves 12-20 x 3-6 cm, alternate, elliptic-oblong shape. Leaf underneath are bluish-green colour. Flowering stalk in the axil of short cymes. Male flowers many and female 3-4 per cyme. Flower tubular, 0.5-0.6 cm long, 3-lobed. Drupes elongate, 5-7 x 1-3.8 cm with densely brown hairy outside enclosing a single large, seed with yellow aril.

Habitat: Scattered in dense evergreen forests.

Uses: Aril is the main commodity of trade as spice and also has medicinal properties; seeds and seed oil medicinal. Hornbills, Lion Tailed Macaque, Hanuman Langur etc. feed on fruits/arils.



SEMECARPUS KATHALEKANENSIS Dassapa & Swami.

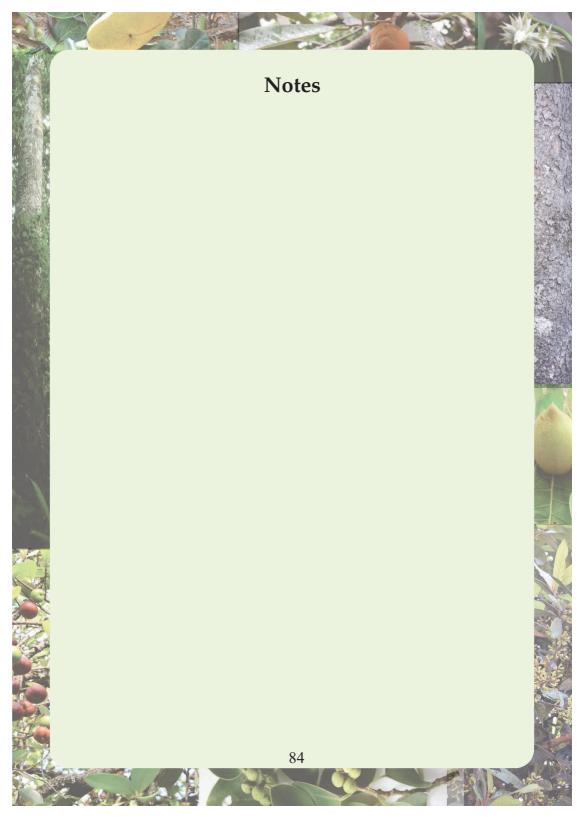
Family: Anacardiaceae

Field Identification: Bark greyish brown, smooth, mottled with numerous prominent lenticels. Latex acrid, watery, turning black after exposure. Leaves huge with acuminate tip.

Botanical description: Branchlets stout, smooth, glabrous. Leaves simple, alternate, spiral, petiole 5-10 cm long; Leaves to 25-100 x 12-22 cm, oblong-lanceolate or obovate, apex obtusely and abruptly acuminate, base oblique and cuneate, margin entire and wavy. Inflorescence axillary panicles with unisexual greenish flowers; male inflorescence 25-50 cm long; female inflorescence 5-15 cm long, rusty pubescent. Drupe, compressed, obliquely reniform, ca. 2 cm, 1-seeded.

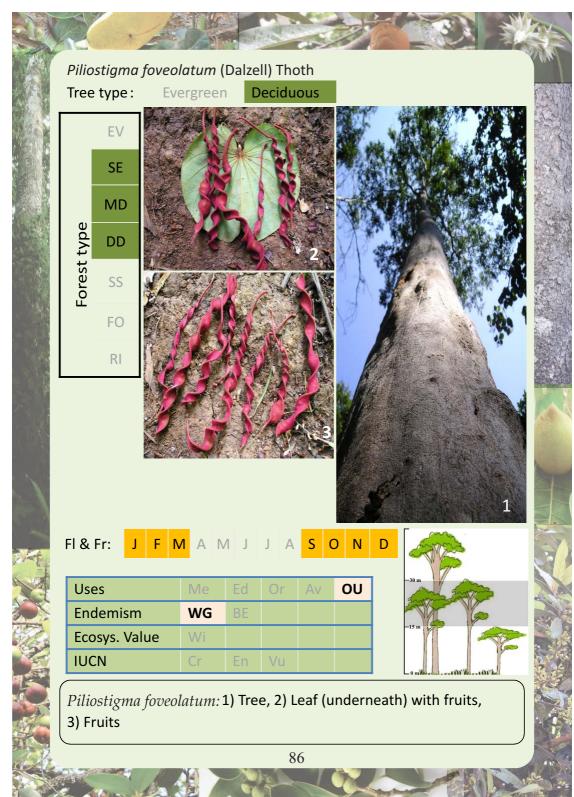
Habitat: Very rare in undisturbed evergreen forest in swamps.

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E. Trees With Leaves Trinerved (3) or More Nerved From Base





PILIOSTIGMA FOVEOLATUM (Dalzell) Thoth

Family: Fabaceae

Synonym: *Bauhinia foveolata* Dalzell **Kannada name**: Basavana pada mara

Field Identification: Large trees with straight boles; Yellowish grey, smooth bark with small irregular knots. Leaves 13-17 nerved from base.

Botanical description: Leaves alternate, 10-18 cm long, broad, suborbicular, base deeply cordate, apex 2-lobed. Flowers scarlet red, subsessile in racemes. Calyx ferruginous-tomentose; tube 3-4 mm long. Petals ovate-oblong. Pods linear-oblong, tomentose, twisted, stalked, red.

Habitat: Rare in moist to dry deciduous forest.

Distribution in Uttara Kannada

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MALLOTUS PHILIPPENSIS (Lam.) Mull. Arg.

Family: Euphorbiaceae

Kannada name: Kumkumada mara

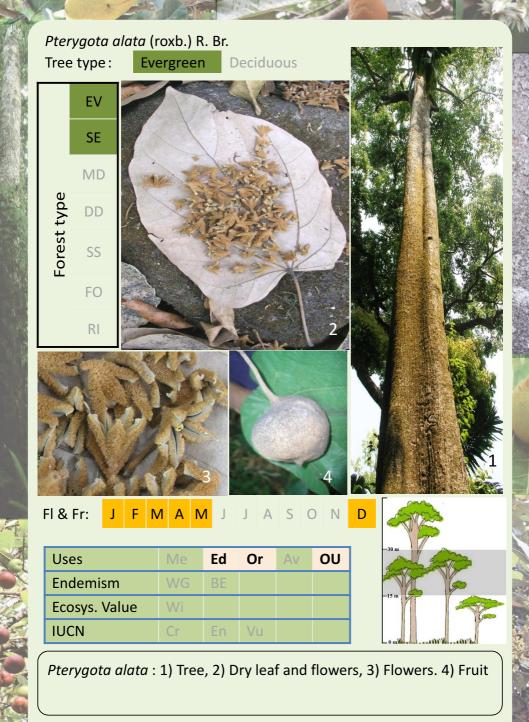
Field Identification: Branchlets rusty tomentose. Ovate toothed (or entire) leaves 3-nerved at base with reddish glands beneath.

Botanical description: Small, evergreen tree. Leaves alternate, 8-23 x 3-12 cm, ovate or ovate-lanceolate, base rounded or acute, apex acuminate, margins entire or serrate, glabrous above, fulvous-tomentose and red glandular beneath. Flowers greenish-yellow, in terminal, brick red spikes or racemes. Sepals 4-5, lanceolate. Stamens numerous. Female flowers in short spikes. Ovary with red glands. Capsule c. 1 cm in diam., 3-lobed, covered with red powder.

Habitat: Common in semi-evergreen forest.

Uses: Fruit powder used in worm infestations, scabies ring worm and other conditions. Dye from the red glands flowering fruits used for dyeing silk. Hanuman Langur feed on fruits.

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PTERYGOTA ALATA (Roxb.) R. Br.

Family: Malvaceae

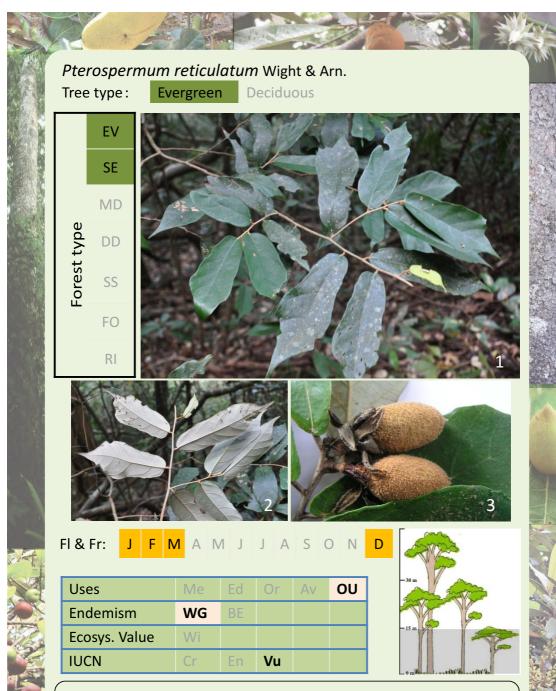
Synonym: Sterculia alata Roxb.

Kannada name: Kolu gida, Kotte, Talbe mara

Field Identification: Huge trees with buttresses, with straight bole; young parts covered with dense golden-yellow stellate pubescence; Leaves ovate, palmately 7-ribbed with long petioles.

Botanical description: Leaves crowded at the ends of branches; up to 10-30 x 8-19 cm, ovate, acute apex, chartaceous, cordate at base, glabrous, 3-7 nerved; petioles 5-9 cm long. Flowers short pedicelled, in rusty tomentose panicles, up to 2.5 cm across. Calyx companulate, deeply 5-6 lobed, rusty tomentose outside. Petals 0. Female flowers with 5 ovaries, sessile, style recurved. Follicles c. 12 cm across, globose, woody.

Habitat: Rare, but sometimes gregarious in dense evergreen to semi-evergreen forest. **Uses**: Seeds are roasted and eaten.



Pterospermum reticulatum: 1) Leafy twig, 2) Leafy twig underneath, 3) Fruits.

PTEROSPERMUM RETICULATUM Wight & Arn.

Family: Malvaceae

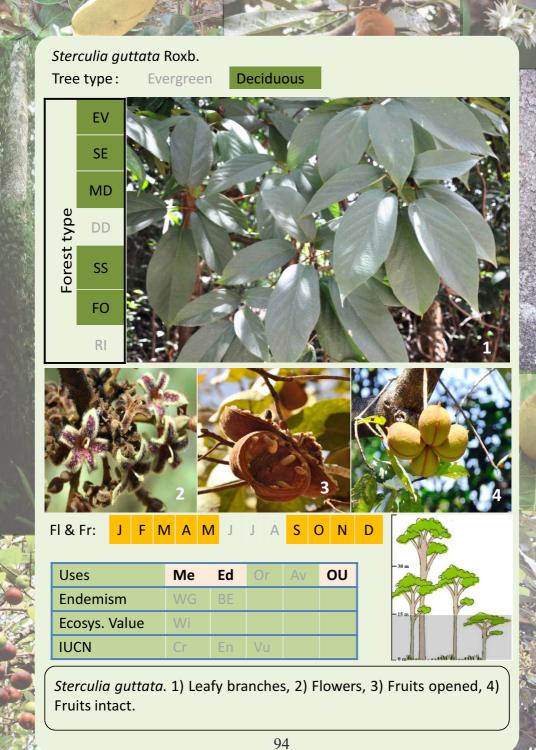
Synonym: *Pterospermum heyneanum* Wall. *ex*. Wight & Arn.

Field Identification: Bark brownish-grey, rough, with longitudinally arranged lenticels. Young shoots covered with ferruginous stellate pubescence. Leaf base asymmetric. Differs from *P. diversifolium* in having narrower leaves and whitish tomentose beneath.

Botanical description: Leaves 10-12 x 5-8 cm, oblongobovate, base rounded or subcordate to slightly oblique, apex long acuminate, entire or coarsely toothed at apex, palmately 3-5 ribbed, prominently reticulate and grey pubescent beneath; petioles up to 1.5 cm long. Flowers white, fragrant. Calyx linear-lanceolate, tometose outside. Petals obovate-oblong. Capsules up to 7 cm long, ovoid to oblong, brown pubescent, splits into 5 valves on maturity Seeds winged at one end.

Habitat: Frequent in evergreen to semi-evergreen forest.

Distribution in Uttara Kannada



STERCULIA GUTTATA Roxb.

Family: Malvaceae

Kannada name: Hulithardu mara

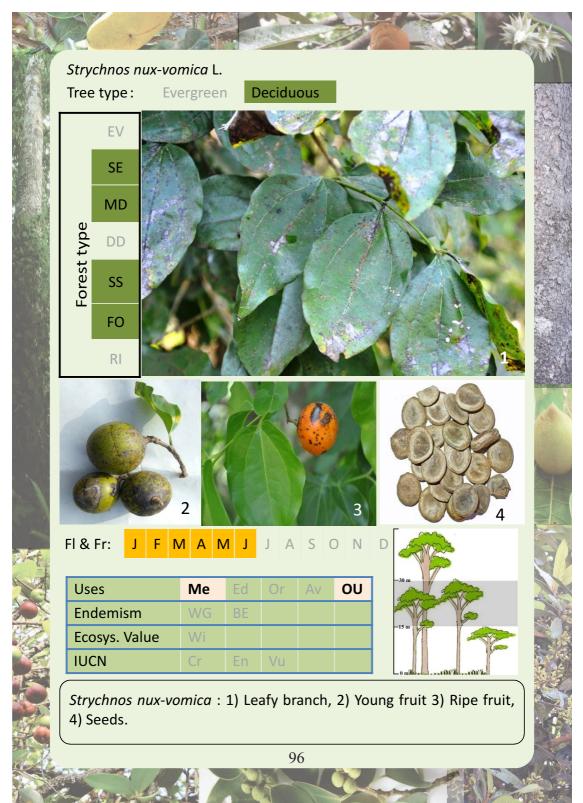
Field Identification: Young shoots clothed with stellate tomentum. Leaves palmately 3-5 nerves; velvety hairy beneath.

Botanical description: Medium sized, deciduous trees. Leaves 25 x 12 cm, simple, clustered towards tips of branches, base rounded or sub-cordate, apex acuminate, palmately 3-5 nerved, glabrous above, softly tomentose beneath petioles; stipulate, petioles up to 6 cm long, thickened at tip, pubescent. Flowers yellow-purple, foetid, in terminal or axillary racemes, crowded at the ends of branches.. Calyx densely tomentose. Anthers 10-12. Fruits 1-5 developing from a single flower, up to 7.5 cm long, obovoid, rugose with bright red-to pink outside when mature. Seeds black, ovoid.

Habitat: Outskirts and forest edges in evergreen to semievergreen forests.

Uses: Seeds are reported to be edible. Hanuman Langur feed on seeds. Seed extract has insecticidal value. Bark yields strong fibre.

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STRYCHNOS NUX-VOMICA L.

Family: Loganiaceae

Kannada name: Kasaraka, Ittemajura.

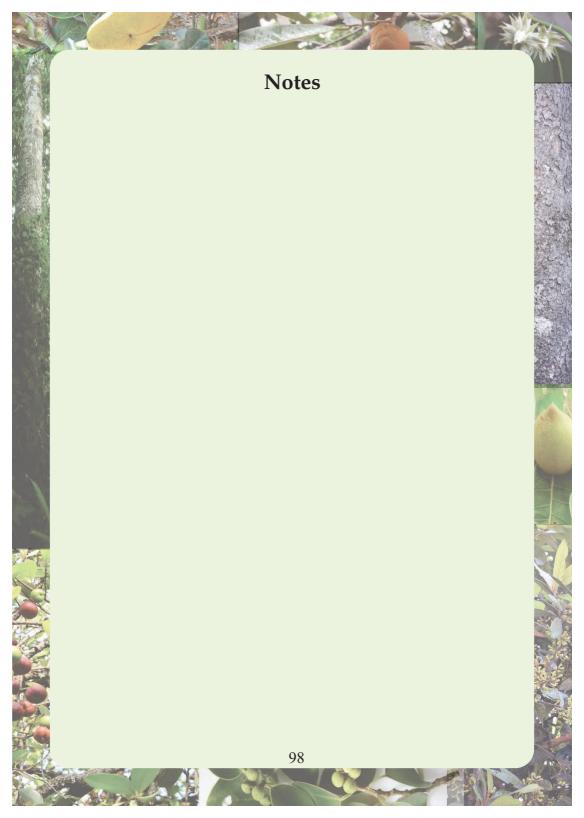
Field Identification: Branchlets often with short sharp axillary spines. Bark greyish-yellow, lenticellate. Inner bark yellow. Leaves opposite, 3-5 nerved with middle 3 nerves prominent. Differs from *Cinnamomum* sp or *Neolitsea* sp, which have fragrant aromatic leaves when crushed and 3-nerved. Also differs from *Celtis timorensis* which have more shining broader leaves, 3-nerved, and crenate-serrate at tip.

Botanical description: Leaves opposite, 6-15 x 4.5-10 cm, broadly ovate or elliptic ovate. obtuse, base rounded, apex obtuse or shortly acuminate, shining, 5-nerved. Flowers numerous, greenish-white; tube c.8 mm long; lobes 5. Stamens 5. Berry 2.5-5 cm in diam., globose, orange red when ripe.

Habitat: In moist deciduous forest, degraded forest and scrub jungles.

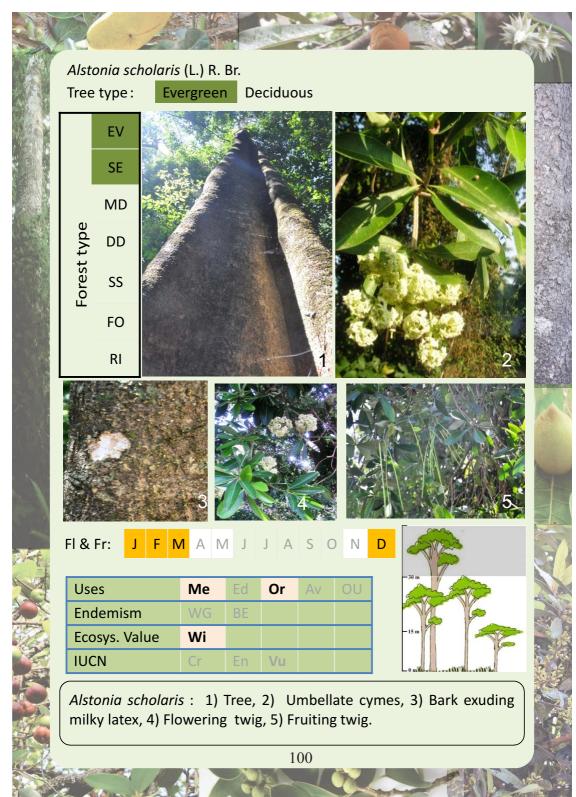
Uses: Fruits eaten by forest animals such as Hanuman Langur. Hornbills feed on fruits. Seeds, bark and roots are used in medicine.

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F. Trees with leaves clustered or whorled at the ends of branches





ALSTONIA SCHOLARIS (L.) R. Br.

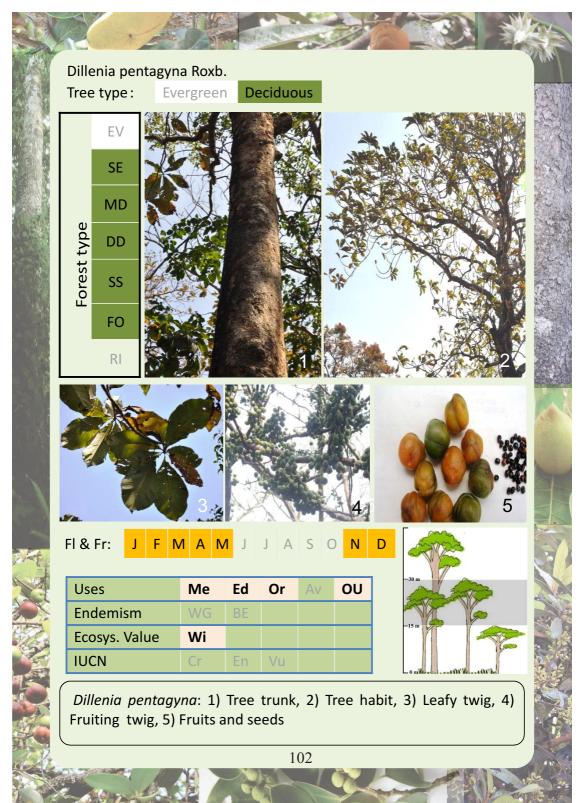
Family: Apocynaceae **Kannada name**: Maddale.

Field Identification: Large, somewhat buttressed trees with strongly fluted stem and milky latex; greyish white rough bark. Leaves in whorls of 4-7.

Botanical description: Young branches lenticellate. Leaves, oblong-elliptic to oblanceolate, 7-17 x 6 cm, base acute to slightly obtuse, apex rounded to notched at apex. Flowers in umbellate cymes; strongly scented; corolla greenish-white, fragrant, tube 6-9 mm long, with short and soft hairs; corolla mouth long and soft hairs at the mouth, lobes wedge-shaped, oblong, 2.5 mm long. Follicles 20-60 cm long, cylindric, pendulous. Seeds light with brown hairs.

Habitat: Found occasionally in evergreen and semievergreen forests or as isolated trees even in rocky places. **Uses**: Bark and leaves used in traditional medicine for malaria, other fevers, ulcers, worm infestations etc. yellow dye obtained from the bark.

Distribution in Uttara Kannada



DILLENIA PENTAGYNA Roxb.

Family: Dilleniaceae

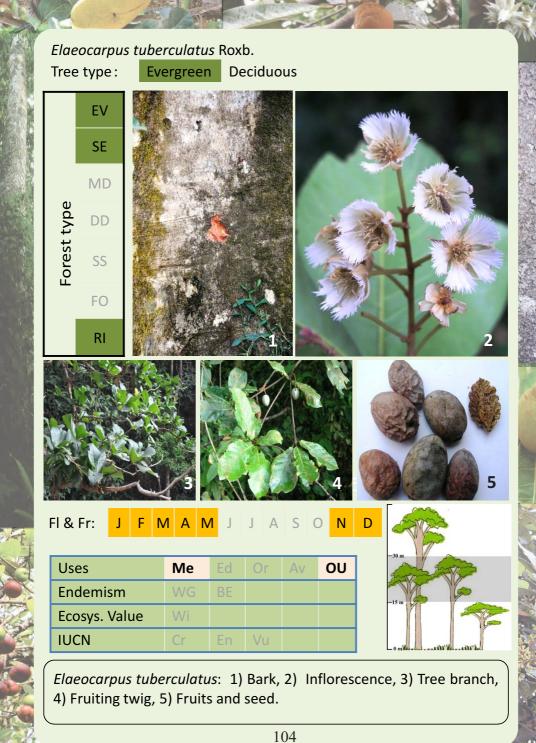
Kannada name: Kanagilu, Kalthega

Field Identification: Moderate sized deciduous trees with large, simple leaves having channeled petioles and sheathing base and many strongly parallel, lateral veins. Greyish-shining, scaly bark and V-shaped, prominent leaf scars.

Botanical description: Leaves to 60 x 20 cm, obovate to oblong-lanceolate, clustered at the end of branches, dentate margins, acute, veins hairy beneath when young. Flowers fragrant, 2.5-3 cm across in fascicles on old leafless branches; pedicels up to 6 cm long. Sepals orbicular, brown. Petals yellow, obovate, apex rounded. Carpels 5. Fruits 2.5-4 cm across, yellow, with fleshy sepals. Seeds reniform.

Habitat: Seen in moist deciduous to dry forests; fire tolerant but with stunted growth in savanna type formations.

Uses: Fruits edible and make notable food for wild animals such as Hanuman Langur, Indian Giant Squirrel, Indian Gaur etc; Langur also feeds on tender leaves. Leaves used for manure and for medicinal purposes. Kerala forest tribes use tender leaves as food



ELAEOCARPUS TUBERCULATUS Roxb.

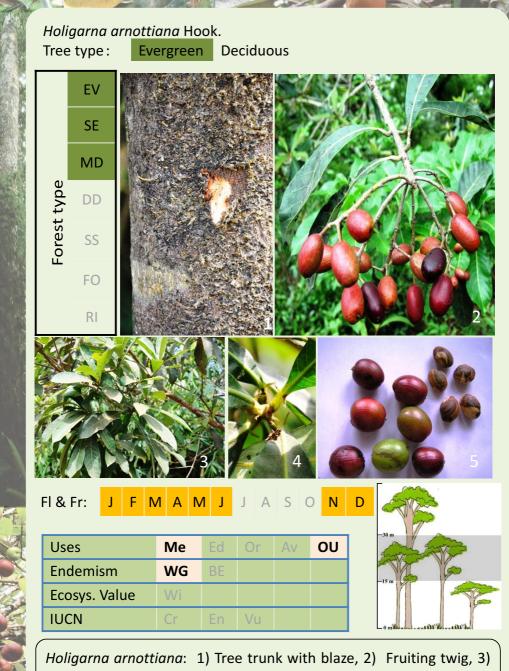
Family: Elaeocarpaceae Kannada name: Bhutali,

Field Identification: Trees with huge buttresses, mostly riverine; large obovate leaves crowded at the end of branches, turns bright red before shedding.

Botanical description: Bark smooth, pale brown. Leaves up to 26 x 14 cm, crowded at the ends of branches, obovate, base narrowed to truncate, apex rounded to obtuse, minutely serrulate, hairy on nerves beneath. Flowers pure white, 2-2.5 cm across. Sepals linear-lanceolate, fulvouspubescent. Petals wedge shape, silky long hairy outside, lacinate. Stamens 40-50. Ovary conical, silky villous. Drupes ovoid, smooth. Stones 2-valved, flattened, tubercled.

Habitat: Evergreen to semi-evergreen forest mostly riverine.

Uses: Stones used to make rosaries and necklaces and used for medicinal purpose.



Leafy twig, 4) Spurs, 5) Fruits and seeds.

HOLIGARNA ARNOTTIANA Hook.

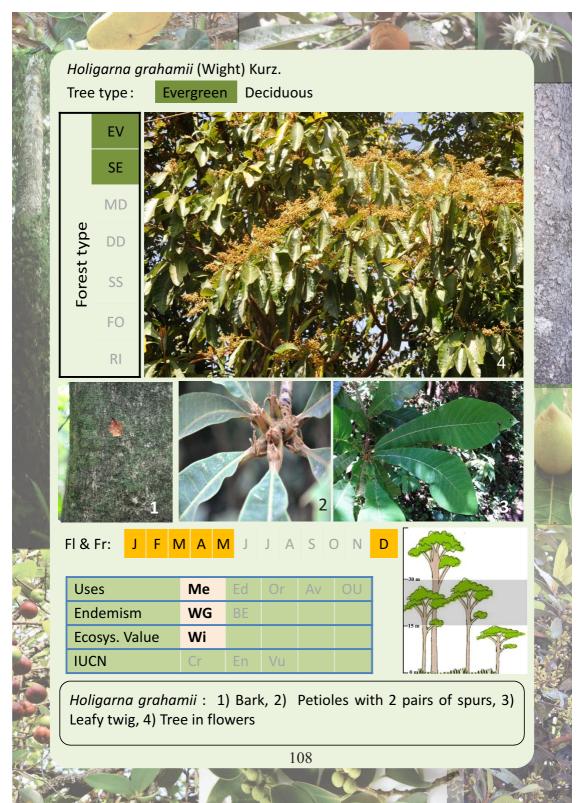
Family: Anacardiaceae Kannada name: Holegeru

Field Identification: Petiole with a pair of spurs at tip; leaf acute tip, veins up to 20 pairs. *H. ferruginea* differs in having obovate leaves, obtuse tips and lateral nerves about 10 pairs; spurs falling early and petioles stout. *H. nigra* differs in having spathulate leaves with rounded or emarginate apex.

Botanical description: Trees with black caustic juice. Leaves up to 25×9 cm, oblanceolate, cuneate-obovate, apex acute, glabrous; petioles to 2.5 cm, spurs brownish hairy at tip. Panicles with golden-brown pubescence. Flowers yellowish-brown. Petals c. 4 mm long. Drupes 1- 2.5×0.5 -1 cm, obliquely ovoid, black when ripe.

Habitat: In semi-evergreen and disturbed forest. Note: All *Holigarna* sp have tree and leaf sap which is caustic causing blisters on skin; might be allergic.

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HOLIGARNA GRAHAMII (Wight) Kurz.

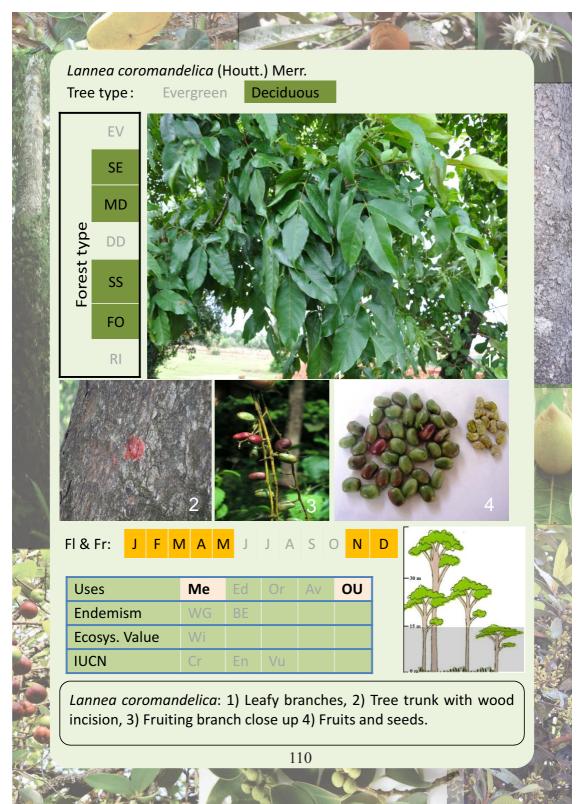
Family: Anacardiaceae

Kannada name: Dodda holegeru

Field identification: Leaves large, golden-tomentose, petioles with 2-4 spurs. Leaves oblanceolate, suddenly broadened at the middle and finely pubescent beneath.

Botanical description: Trees with black caustic juice. Leaves to 45 x 20 cm, oblanceolate, abruptly broadening above the middle, acuminate at the apex, cuneate at apex, finely pubescent beneath; spurs, early deciduous; lateral nerves 22-30 pairs. Flowers whitish or yellowish-green, 3-7 mm across, crowded, in rufous-tomentose panicles. Drupe c. 2.5 cm long, oblong-ovoid.

Habitat: Dense evergreen to semi-evergreen forest **Uses**: Important fodder trees of Hanuman Langur and Lion Tailed Macaques. Extract of various *Holigarna* spp. inhibit various kind of human pathogens. In traditional medicine used for treating arthritis, dysentery, skin diseases etc.



LANNEA COROMANDELICA (Houtt.) Merr.

Family: Anacardiaceae

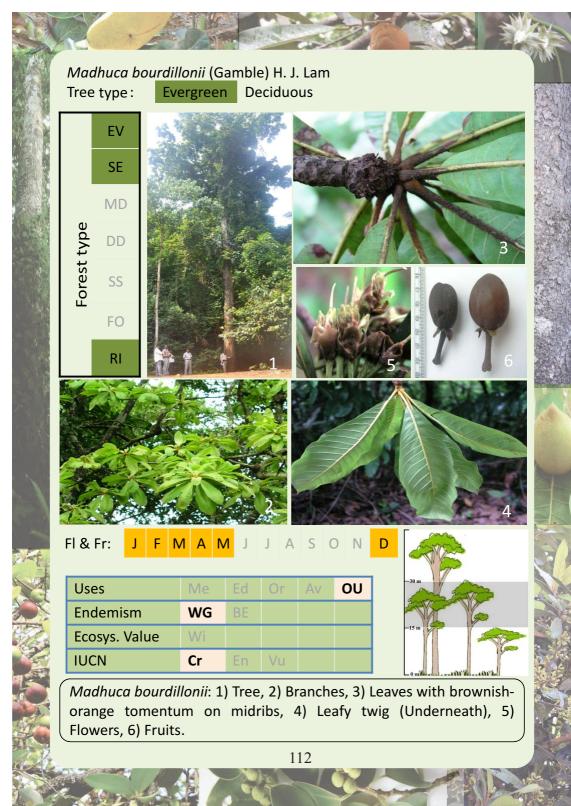
Kannada name: Gojjalu, Goddana mara

Field Identification: Bark ash coloured, flaking off in thin irregular scales; inner wood red, mucilaginous. Young shoots rusty tomentose.

Botanical description: Leaves alternate, imparipinnate, 20-45 cm long; leaflets 3-5 pairs, 5-11.5 x 4-6 cm ovate, elliptic, base oblique, apex long acuminate, margins entire, stellate pubescent beneath. Flowers yellow, appearing when leafless, in cymose fascicles. Calyx ovate-orbicular. Petals 3-4 cm, greenish-white or tinged with purple. Drupe c. 1.2 cm long reniform, reddish-brown.

Habitat: Occasional in dry rocky areas of moist deciduous forests.

Uses: Used medicinally, wood used for many purposes, and leaves as fodder. Bats feed on fruits. Hanuman Langur uses fruits and tender leaves and flowers; Chital feeds on flowers.



MADHUCA BOURDILLONII (Gamble) H. J. Lam

Family: Sapotaceae

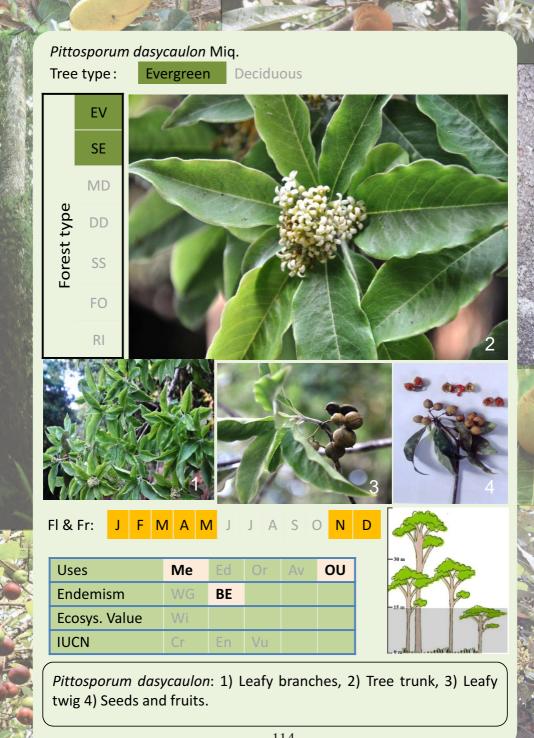
Synonym: Bassia bourdillonii Gamble

Kannada name: Dodda Hippe

Field Identification: Bark greyish-brown, deeply fissured and flaky, with milky latex. Petioles and underside of leaf midrib and veins with brownish-orange, woolly hairs.

Botanical description: Large trees. Leaves, simple, clustered at the ends of branches, to 20-32 x 6-10 cm; lateral nerves 20-25; leaf base narrowing into short, thick, hairy petiole. Flowers in dense clusters from axils of fallen leaves or of older leaves. Flower pedicel 1.5-2 cm long covered with dense hairs. Sepals 4, hairy outside. Ovary glabrous. Fruits berries, 2-3 seeded.

Habitat: Very rare in evergreen to semi-evergreen forest; closer to streams.



PITTOSPORUM DASYCAULON Miq.

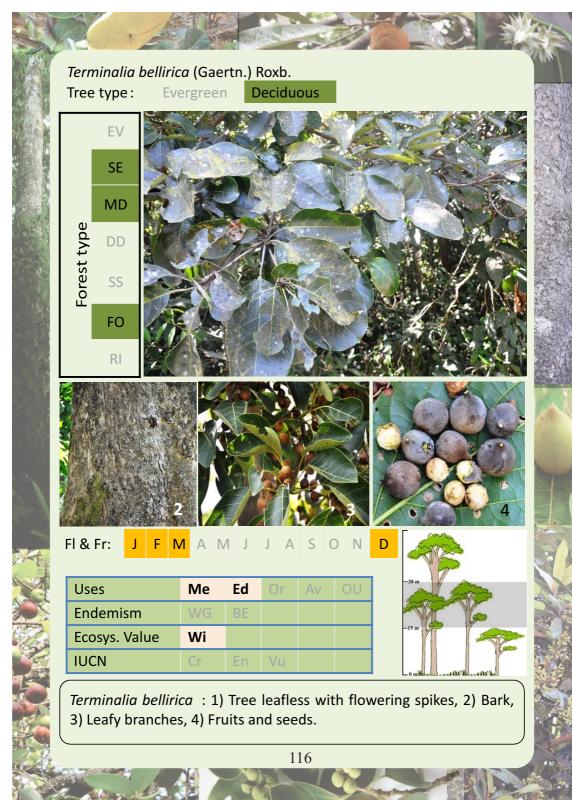
Family: Pittosporaceae

Field Identification: Branches lenticellate. Young branchlets, buds densely and rusty tomentose. Leaves margins undulating; nerves finely reticulated; orange to reddish seeds inside capsular fruit.

Botanical description: Small sized evergreen trees. Leaves alternate, thinly coriaceous, lanceolate or broadly ovate, up to 15 x 6 cm, glabrous or midrib hairy beneath, crowded towards apex of branches. Petioles channelled above, up to 1.2 cm. Flowers c. 1 cm across, in short dense tomentose terminal corymbs. Sepals ovate. Petals yellowish-green, oblong. Ovary densely tomentose. Capsule c. 1.3 cm in diam., globose, 2-valved, crowned with persistent style. Seeds 4, orange to reddish.

Habitat: Evergreen to semi-evergreen forest preferring open areas.

Uses: Reputed in Ayurvedic medicine as expectorant and febrifuge.



TERMINALIA BELLIRICA (Gaertn.) Roxb.

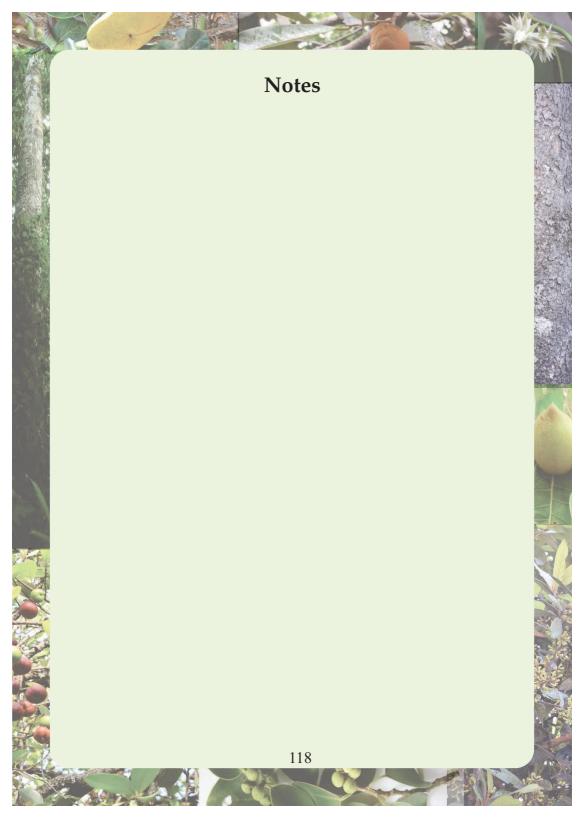
Family: Combretaceae

Kannada name: Taare mara

Field Identification: Large buttressed tree with shallowly fissured bark and often ashy coating. Leaves crowded at the ends of branches with long petioles; sessile glands at the apex of petiole.

Botanical description: Leaves alternate, up to 20 x 10 cm, ovate-obovate or broadly elliptic, apex obtuse or acute, glabrous, coriaceous; petioles up to 10 cm long. Flowers yellowish-green, foetid, c. 5 mm across, in axillary spikes. Calyx densely villous inside, recurved. Drupes subglobose, c. 2.5 x 2 cm, minutely brown tomentose, faintly 5-ridged.

Habitat: Outskirts of evergreen to semi-evergreen forest. **Uses**: Fruits extensively used in medicine. The kernels are edible. Ripe fruits have alcoholic effect. Fruits eaten by wild animals such as Indian Gaint squirrel, Hanuman Langur etc.



G. Trees With Simple, Opposite And Serrate Leaves





CALLICARPA TOMENTOSA L.

Family: Lamiaceae (Labiatae)

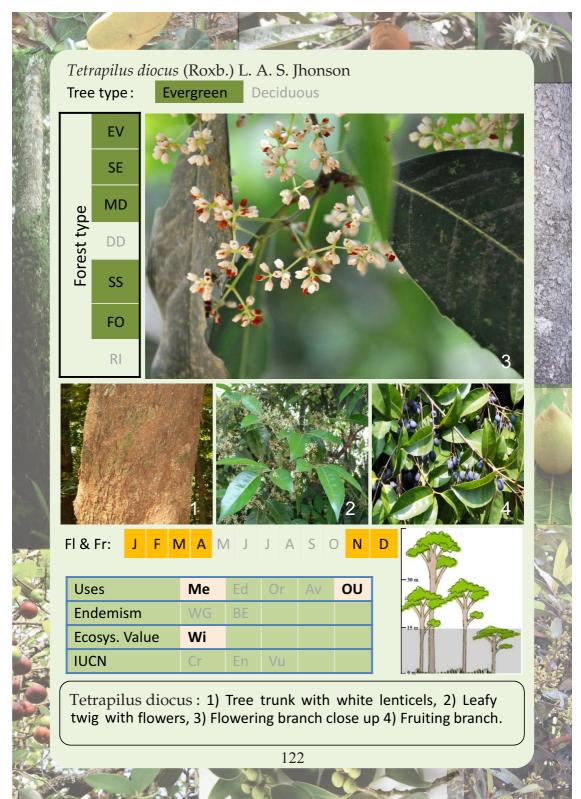
Field Identification: Branchlets and young leaves clothed with dense, wooly white, stellate tomentum.

Botanical description: Small trees or shrubs. Leaves to 30 x 20 cm, elliptic-ovate, base rounded, apex acuminate, hirsute on nerves above, densely white tomentose beneath, margins entire or minutely serrate. Flowers terminal umbellate cymes. Calyx *c.* 2.5 mm long, 4-lobed, tomentose. Corolla 4 mm long reddish-purple. Ovary 2-celled. Drupes *c.* 4 mm across, globose, turning purpleblack.

Habitat: In outskirts of semi-evergreen forest.

Uses: Aqueous extract of leaves for dressing wounds, boils, itches etc; roots also with similar actions. Other parts also have various medicinal uses.

Distribution in	Uttara	Kannad	la
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TETRAPILUS DIOCUS (Roxb.) L. A. S. Jhonson

Family: Oleaceae

Synonym: *Olea dioica* Roxb.

Kannada name: Akki arkalu, Akkasale, Madle

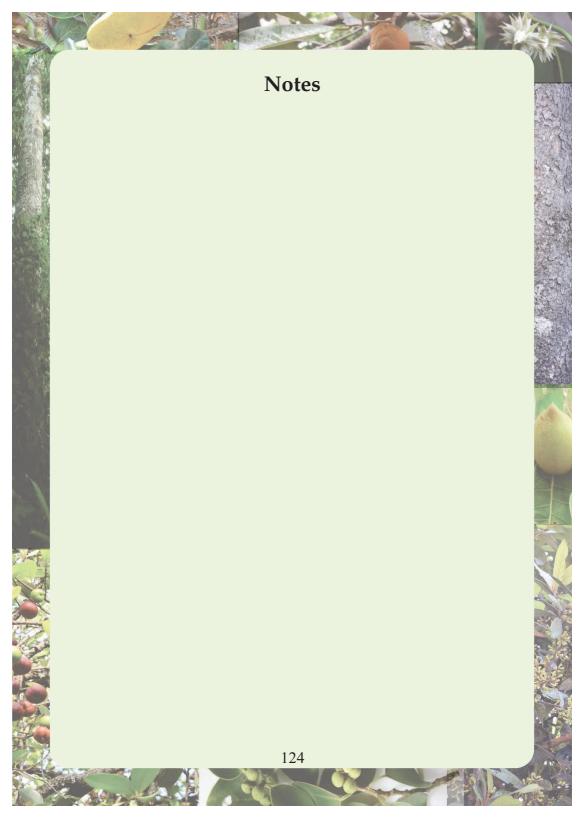
Field Identification: Bark rough, brownish-grey, shallowly vertically grooved and white lenticellate. Branchlets lenticellate. Inner wood soft, yellow with characteristic tamarind smell. Leaves opposite, mostly serrate.

Botanical description: Leaves opposite, 5-15 x 3-5 cm, elliptic-lanceolate, acute or acuminate at apex, distantly serrate or sometimes entire, base acute, coriaceous, glabrous. Flowers in axillary or extra-axillary panicles, fragrant. Corolla tubular companulate, c. 2.5 mm long, creamy white turn brown on ageing. Stamens 2. Drupes ellipsoid, c.1.2 cm long, purple to black when ripe.

Habitat: Common in disturbed forest and forest openings in evergreen to moist deciduous forest.

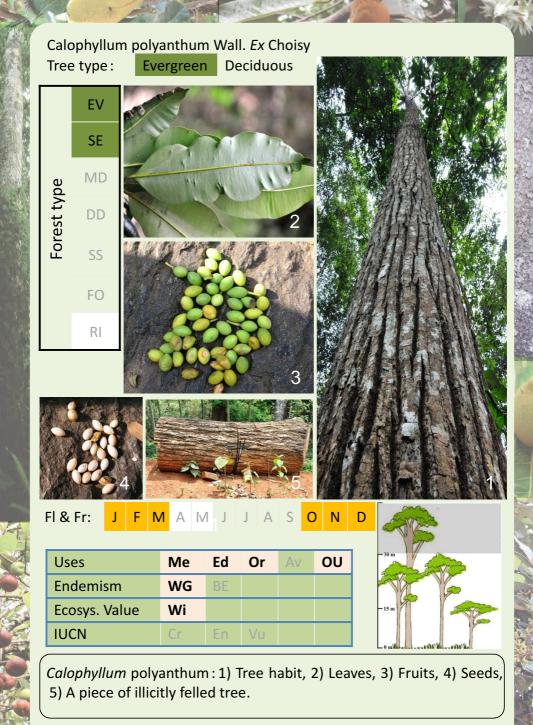
Uses: Ripe fruits though bitter eaten by many wild animals (eg. Hanuman Langur). Host to many butterflies and birds.

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H. Trees With Simple, Opposite and Entire Leaves





CALOPHYLLUM POLYANTHUM Wall. ex Choisy

Family: Calophyllaceae

Synonym: Calophyllum tomentosum non Wight

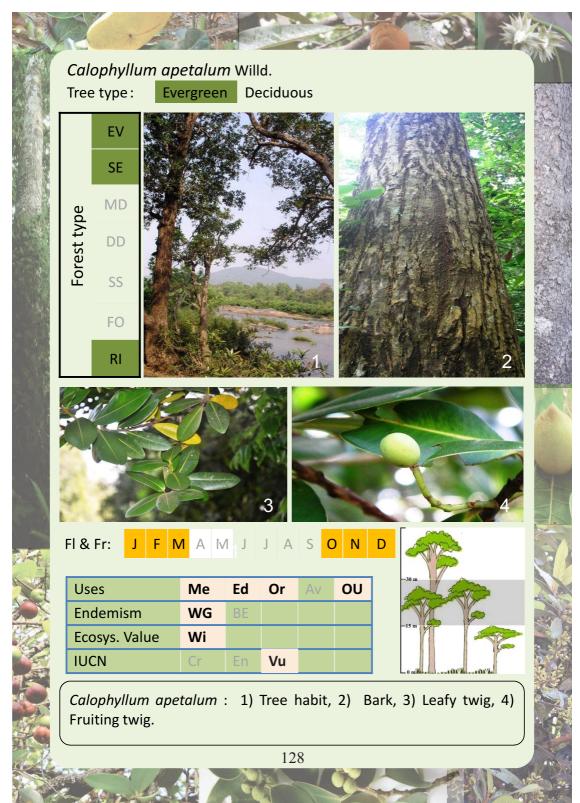
Kannada name: Surahonne

Field Identification: Very tall lofty trees with cylindrical stem unbranched till the top crown. Bark normally yellowish brown to dark brown, with deep, longitudinal fissures unlike *Mimusops elengi* with shallow fissures and bark without yellow shade. It differs from *Calophyllum apetalum* which has obtuse or retuse leaf apex.

Botanical description: Young parts more or less rusty tomentose; branchlets 4-angled. Leaves to 15 X 5 cm, elliptic oblong, narrowed at base, acuminate at apex, glabrous, coriaceous, shining, margins entire or undulating. Inflorescence terminal with flowers 1-2 cm across, white; pedicel tomentose. Sepals unequal, 4. Petals 4. Stamens many. Drupe c. 2 cm across, obliquely-ovoid, pointed.

Habitat: Mostly found in undisturbed evergreen forest. **Uses**: Fruits edible and are important wildlife food resource. Trees host many forest birds including Hornbills. Seed oil used for illumination. Good construction timber.

Distribution	in Uttara	Kannada
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CALOPHYLLUM APETALUM Willd.

Family: Calophyllaceae

Kannada name: Hole-honne

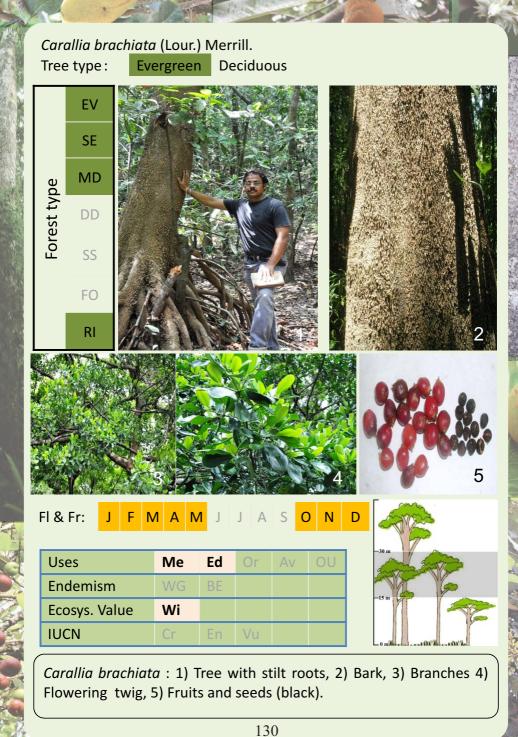
Field Identification: Large trees with yellowish brown, fissured bark; Distinguished from *C. polyanthum* by obtuse or retuse leaf apex and lighter bark with shallower furrows.

Botanical description: Leaf petiole to 0.5 cm long; leaf blade 5-12 x 2.5-4 cm, oblong-obovate, apex obtuse or retuse, base rounded or cuneate, leathery, shining above, paler beneath; lateral nerves close. Flowers white, in racemes; pedicels 1.5 cm long. Sepals 4, biseriate. Petals absent. Drupes 1.5-2 cm long, ellipsoid, smooth, and yellowish-orange.

Habitat: Commonly along shaded river and stream sides in evergreen to semi-evergreen forest.

Uses: Ripe fruits edible. Used for medicinal purpose in rheumatism. Seeds oil for skin diseases and rheumatism and for lighting. Timber used in construction.

Distribution in	Uttara K	Kannada
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CARALLIA BRACHIATA (Lour.) Merrill.

Family: Rhizophoraceae

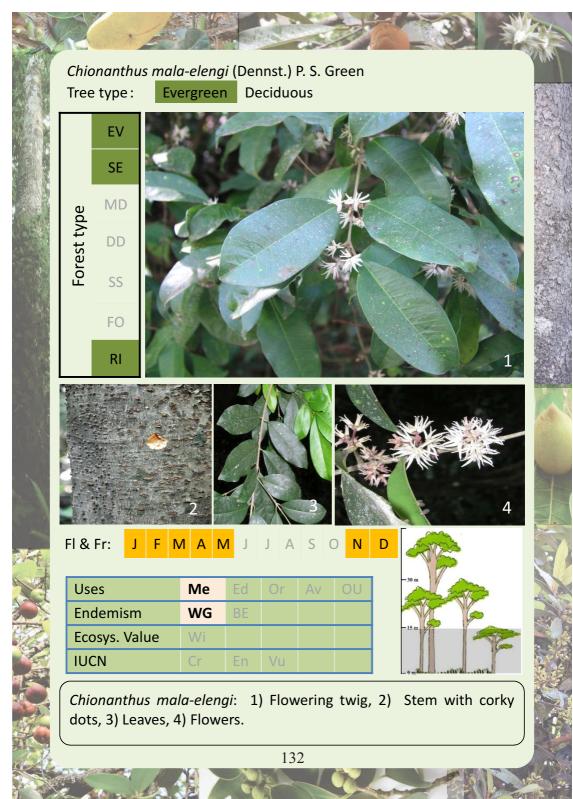
Synonym: *Carallia integerrima* DC. **Kan**: Andu, Anda-muragalu

Field Identification: Trees sometimes with stilt roots particularly in riverine areas. Bark with prominent pistullar-lenticulate rough surface. (From far leaves look similar to *Garcinia gummi-gutta* which exudes yellow sap from stem when blazed. No yellow sap in *C.brachiata*).

Botanical description: Leaves opposite, thick, 7-12 x 4-6.5 cm, entire, obovate, rounded-emarginate to obtuse and with many close parallel veins. Flowers small, white, sessile, in axillary trichotomous cymes. Calyx *c*. 4 mm long; lobes 6-8. Petals as many as calyx lobes; orbicular, 2-fid, clawed. Stigma 4-5 lobed. Berries 1-seeded, *c*.6 mm long, red.

Habitat: Common near riverine, wet areas of evergreen to semi-evergreen forests.

Uses: Bark used for medicinal purposes such as itches. Fruits edible and many forest birds (Starlings) and animals like Hanuman Langur feed on it. Timber for veneer and plywood.



CHIONANTHUS MALA-ELENGI (Dennst.) P. S. Green

Family: Oleaceae

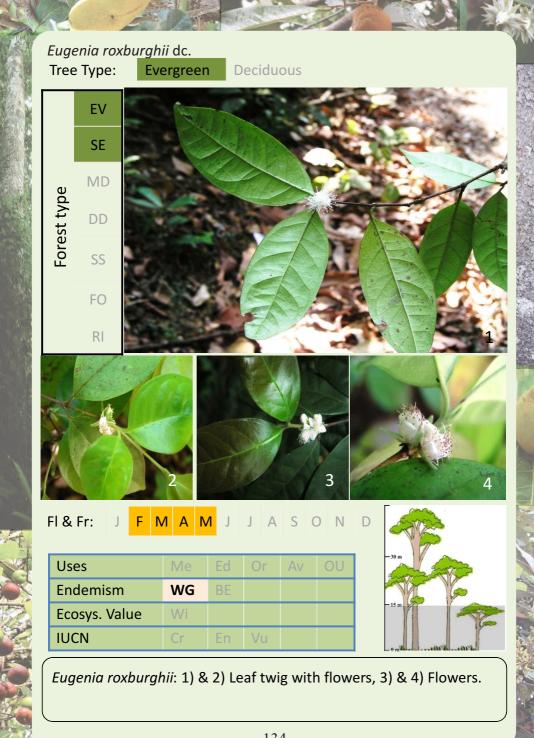
Synonym: *Linociera malabarica* Wall *ex* G. Don **Kannada name**: Akkarkal, Horiakkimara

Field Identification: Bark greyish, covered with raised corky dots. Leaves often white dotted and lateral nerves about 10 pairs, joining in loops.

Botanical description: Medium sized tree. Leaves opposite, up to 12 x 5 cm, elliptic-oblong to elliptic, base cuneate, apex obtuse or abruptly acuminate, margins revolute. Flowers small, white or yellowish white, odorous, in axillary fascicles. Calyx 2 mm long, grey pubescent. Petals 4, c. 6 cm long, linear-lanceolate. Fruit a drupe, 8-12 mm long, ellipsoid, slightly curved.

Habitat: In outskirts of evergreen to semi-evergreen forest and stream sides.

Distribution in Uttara Kannada



EUGENIA ROXBURGHII DC.

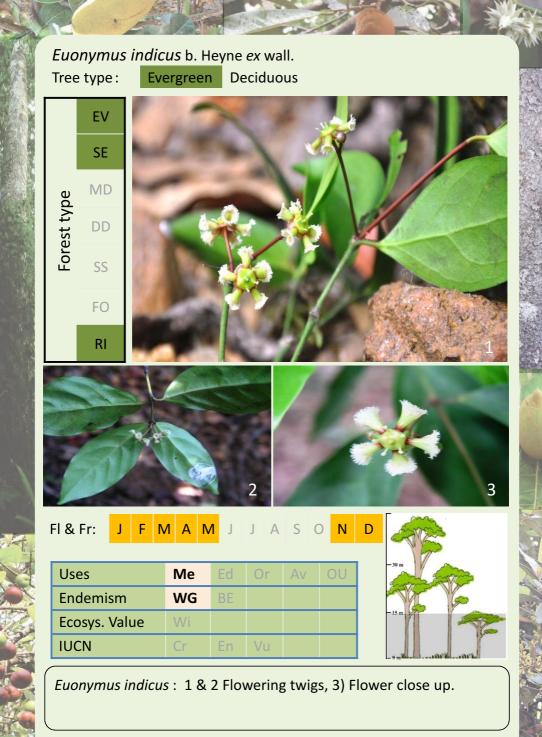
Family: Myrtaceae

Synonym: Eugenia macrosepala Duthie

Field Identification: Large shrubs, or small trees. Young branchlets brownish with grey pubescence. Young leaves pubescent.

Botanical description: Leaves opposite, to 5-13 x 2.5-4.5 cm, elliptic-oblong, apex shortly or obtusely acuminate, base usually acute, glabrous when old, lateral nerves conspicuous beneath. Flowers sessile, white, lateral from leaf axils, solitary or in pairs; bracteoles 2, linear. Calyx 4-lobed, clothed with white hairs. Petals ciliate.

Habitat: Understorey plants of evergreen to semievergreen forest in ghats, preferably in low to mid altitude.



EUONYMUS INDICUS B. Heyne ex Wall.

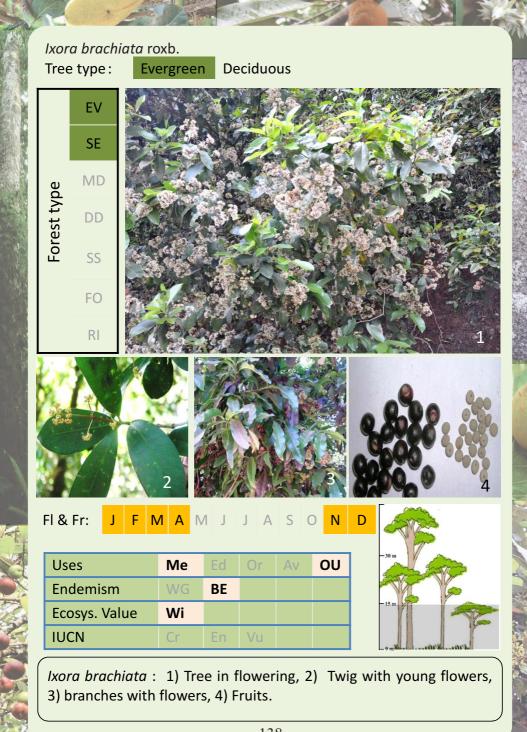
Family: Celastraceae

Kannada name: Kad-dasal

Field Identification: Inner bark yellowish-orange when shallowly blazed. Branchlets terete to somewhat angular.

Botanical description: Leaves opposite, 4-8 x 2-4 cm, elliptic, thinly coriaceous, glabrous, few serratures at the apex. Flowers yellowish-red, with prominent disc, c. 2 cm across, axillary, solitary or in peduncled cymes, star shaped. Calyx 5-lobed. Petals 4-5, laciniate at the apex. Disc 5-lobed. Capsules c. 2 cm long, obcordate, 5-winged, reddish.

Habitat: Evergreen to semi-evergreen forests along streams.



IXORA BRACHIATA Roxb.

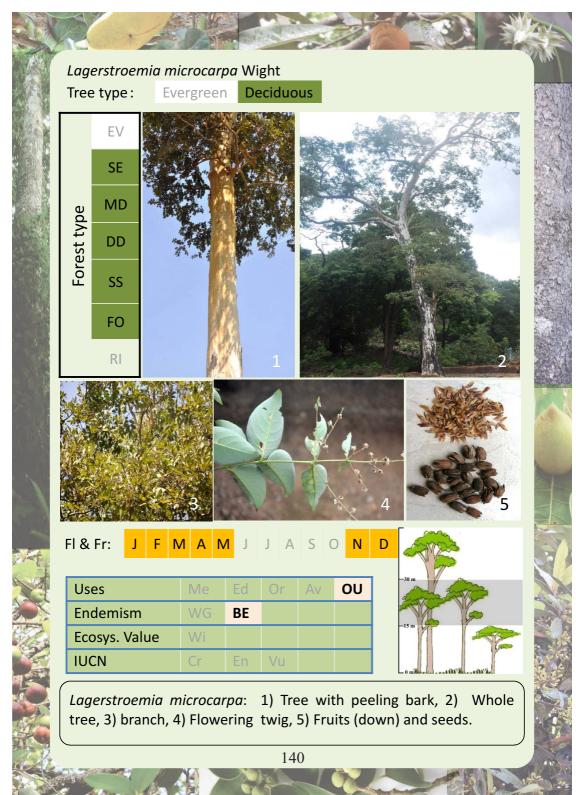
Family: Rubiaceae

Kannada name: Gurani, Garbale

Field Identification: Leaf opposite with interpetiolar stipules and strongly scented, white flowers with thin corolla tube; in sessile or shortly peduncled cymes.

Botanical description: Leaves 6-20 x 3.5-7.5 cm, ellipticoblong or lanceolate, obtuse at apex, without hairs; leaf stalk 1.4 cm long. Flowers in terminal, trichotomously (thrice branched) branched corymbose cymes. Corolla tube 4-6 mm long. Stamens 4. Drupe 6-8 mm across, globose, purplish-black when ripe. Seeds hemispherical.

Habitat: Under-storey trees in semi-evergreen forest. **Uses**: Fruits sweetish and eaten by wild animals and birds.



LAGERSTROEMIA MICROCARPA Wight

Family: Lythraceae

Synonym: *Lagerstroemia lanceolata* Wall. *Ex* C.B. Clarke

Kannada name: Nandi mara

Field Identification: Smooth bark, yellowish to whitishgrey, outer bark peeling off in large papery strips exposing smooth inner bark white and fibrous; wood reddish.

Botanical description: Leaves opposite, elliptic-lanceolate or broadly ovate, up to 10 x 6 cm, acute or very shortly acuminate at apex, coriaceous, usually hairy and glaucous beneath. Flowers white, in large axillary and terminal panicles. Calyx pink, hoary tomentose. Petals c. 0.7 cm long, obovate-spathulate. Capsule ellipsoid, up to 1.8 cm long, ellipsoid or oblong. Seeds winged.

Habitat: Frequent in semi-evergreen to deciduous forests. Large trees in evergreen forests indicates past disturbances such as forest fire and clearing.

Uses: Wood for construction and boats.



LAGERSTROEMIA SPECIOSA (L.) PERS.

Family: Lythraceae

Synonym: *Lagerstroemia flos-reginae* Retz. **Kannada name:** Hole-Dasavala, Taman

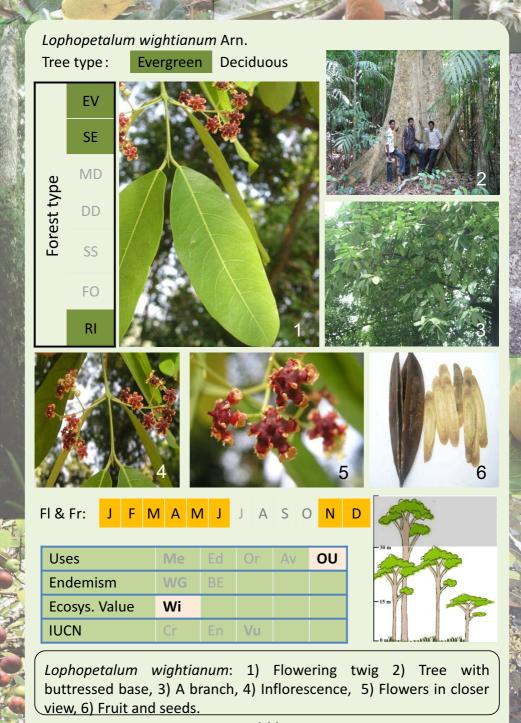
Field Identification: Bark smooth, white, scaling off in thin plates; inner bark white, fibrous. Branches widely spreading.

Botanical description: Leaves glabrous, upper leaves opposite, up to 20 x 8 cm, oblong-lanceolate, acute or acuminate at apex, pale beneath. Flowers purple-lilac, 5-7.5 cm across, in large terminal panicles; pedicel stout, pubescent, with 2 thick, ovate, opposite bracteoles. Calyx tube ribbed outside, tomentose. Petals sub-orbicular, long clawed. Capsule broadly ovoid, up to 2.5 cm long, seated on the woody ribbed calyx, seeds winged.

Habitat: Semi-evergreen to moist deciduous forests along rivers and streams.

Uses: An ornamental tree and wood used for construction and furniture.

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LOPHOPETALUM WIGHTIANUM Arn.

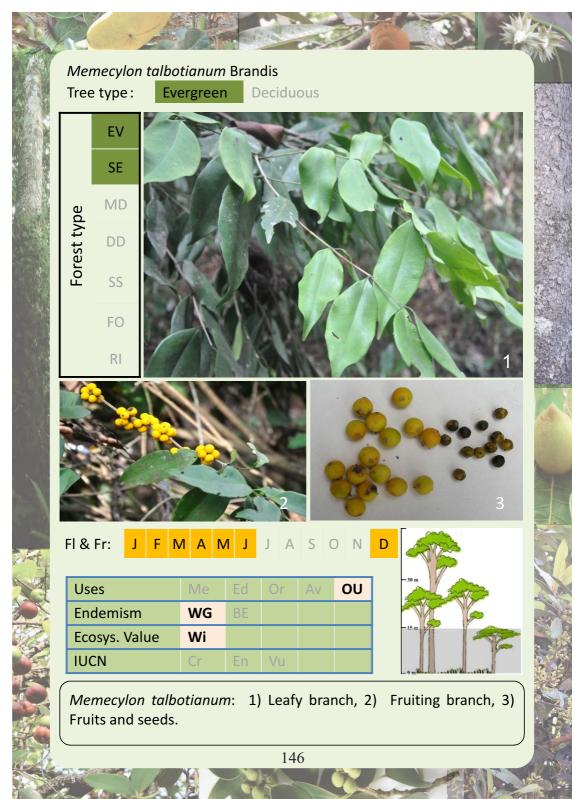
Family: Celastraceae

Kannada name: Boralu paale, Banate, Belpaale, Sattale;

Field Identification: Large evergreen trees, to 40 m; buttressed and with thick yellow serpentine roots from base spreading on forest floor. Yellowish orange markings on bark when scraped, rough, scaly, greyish bark mottled with yellow. Wood reddish grey.

Botanical description: Leaves alternate to opposite, 8-15 x 4-7 cm, broadly elliptic or elliptic-oblong with entire margins, glabrous on both surfaces, coriaceous. Flowers in terminal or axillary paniculate cymes. Calyx 5-lobed, in continuity with a prominent, fleshy, 5-lobed, purplish disc; petals also purple with minutely dentate, wider, yellowish tip, in continuity with disc lobes at base. Fruit capsular, triangular outline, up to 14 cm long; seeds thin, broadly winged.

Habitat: Found in evergreen-semi-evergreen forests; prefers river and stream banks. Hanuman Langur feeds on fruits.



MEMECYLON TALBOTIANUM Brandis

Family: Melastomataceae

Kannada name: Belivaratha, Adachari

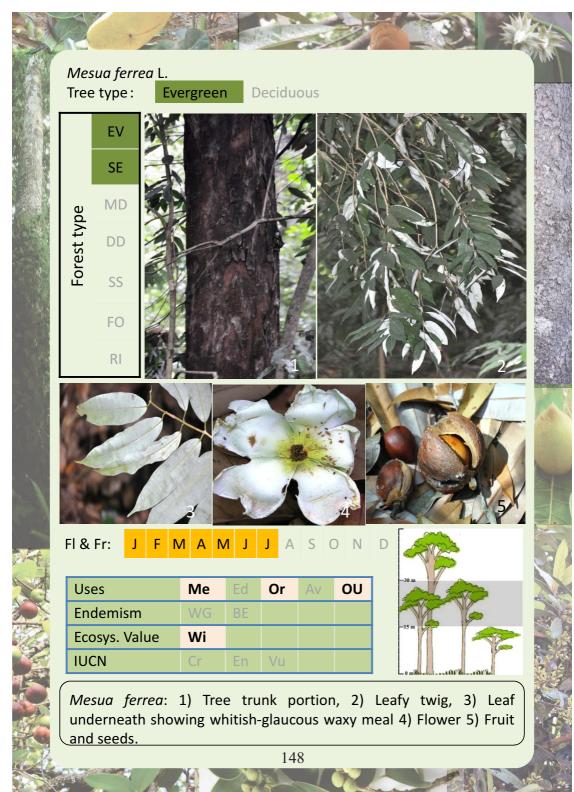
Field Identification: Shrubs or small trees. Branchlets terete, dark green above, paler beneath with distinct channeled petiole. Fruits orange/yellow. Differs from *M. edule* which has sharply quadrangular branches and blackpurple fruits when ripe. *M. malabaricum* has leaves with broad, cordate, amplexicaul base and black fruits.

Botanical description: Leaves opposite, coriaceous, ovate or elliptic, up to 10×5 cm, shortly and obtusely acuminate, narrowed into a short petiole at base, dull and yellowish when dry, margins slightly revolute; lateral nerves indistinct; petiole stout, channelled. Flowers small, blue, sessile, in compact clusters, axillary or on old wood. Berry globose or ovoid, yellow, up to 8 mm across, crowned with a calyx tube, turning yellow when ripe.

Habitat: Understorey trees in evergreen to semi-evergreen forest.

Uses: Birds and animals feed on berries. Wood used for walking sticks and charcoal; leafy branches used for thatching.

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MESUA FERREA L.

Family: Calophyllaceae

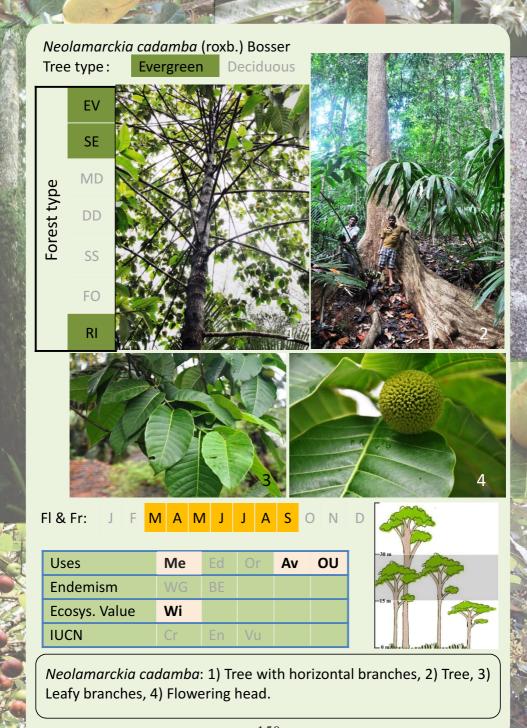
feed on leaves.

Kannada name: Nagasampige, Nagakesara

Field Identification: Bark reddish-brown to greyish, flaking off as thin, large scales. Leaves lateral veins very fine and numerous, with whitish-glaucous waxy meal beneath.

Botanical description: Large trees. Leaves opposite, 5-12 x 2-4 cm, elliptic-oblong or lanceolate, base subacute, apex acuminate, red when tender, nerves at right angle to the midrib. Flowers white, 5-8 cm across, bisexual, usually solitary, axillary or terminal, pedicellate. Sepals 4, orbicular. Stamens numerous, yellow. Fruit ovoid, 2.5-5 cm in diam., woody, surrounded by enlarged sepals. Seeds dark brown, 1-4, large.

Habitat: Rare in evergreen and semi-evergreen forest. **Uses**: Used for medicinal purpose. Flowers and stamens are good haemostat. Oil extracted from seeds useful for soaps. Essential oil from flower distillation for soap aroma. Wood used in construction purposes. Bonnet Macaque



NEOLAMARCKIA CADAMBA (Roxb.) Bosser

Family: Rubiaceae

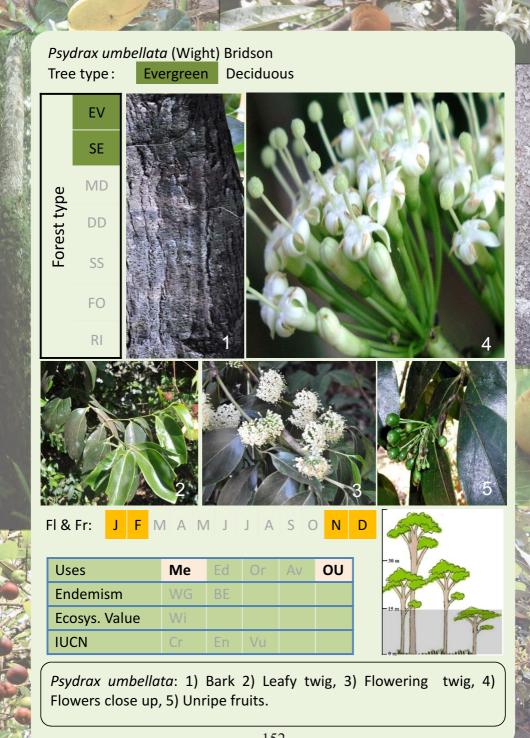
Synonym: Anthocephalus cadamba (Roxb.) Miq **Kannada name:** Kadamba mara, Neerubale

Field Identification: Large riverine trees, old trees buttressed; bark pale brown, vertically shallowly grooved. Branches horizontally spreading; stipules interpetiolar.

Botanical description: Leaves opposite, up to 30 x 15 cm, coriaceous, elliptic to elliptic-oblong, shortly acuminate, glabrous and shining above, pubescent beneath, margins undulating, base usually rounded, sometimes cordate; main lateral nerves parallel, prominent on both sides. Flowers fragrant, in solitary terminal, globular heads, c. 3.5 cm across. Calyx lobes 5, linear. Corolla orange or pale yellow; tube c. 1 cm long; lobes 5, lanceolate. Stamens 5. Fruits c. 6 mm long, globose, yellow when ripe.

Habitat: Occasional along streams and rivers.

Uses: Bark and leaf used for medicinal purpose. Fruits and flowers used to prepare wine. Leaves eaten by Hanuman Langur. Wood soft, used for packing purposes.



PSYDRAX UMBELLATA (Wight) Bridson

Family: Rubiaceae

Synonym: Canthium dicoccum var. umbellatum (Wight)

Santapau & Merch.

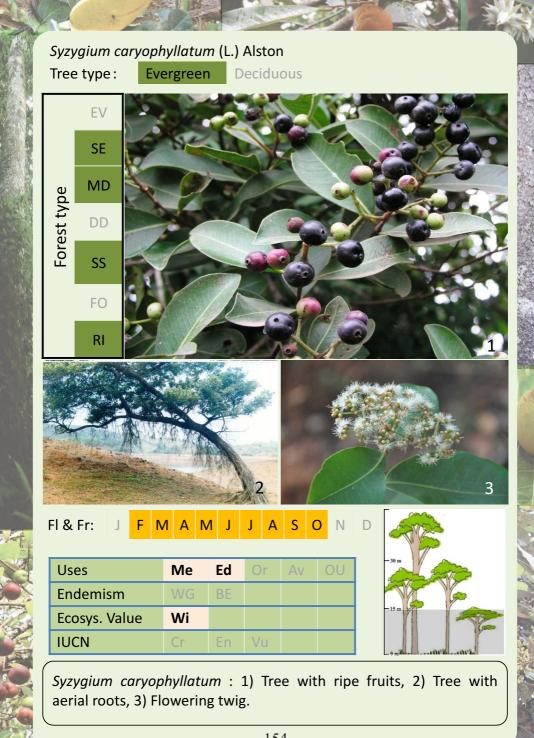
Kannada name: Hanigeri

Field Identification: Bark shallowly fissured. Leaves with waxy coating and domatia in axils of lateral nerves.

Botanical description: A small evergreen tree; branchlets more or less quadrangular. Leaves opposite, up to 15×7 cm, elliptic-lanceolate, obtuse or shortly acuminate at apex. Flowers 5-merous, in pedunculate umbels, fragrant. Corolla c.8 mm long, densely white hairy in throat; lobes 5. Stamens 5. Drupes obovoid, c.7 mm across, black when ripe.

Habitat: Occasional in outskirts of semi-evergreen forests and scrubby wet forest.

Uses: Bark employed for medicinal treatment such as fracture. Wood is very hard and having several uses.



SYZYGIUM CARYOPHYLLATUM (L.) Alston

Family: Myrtaceae

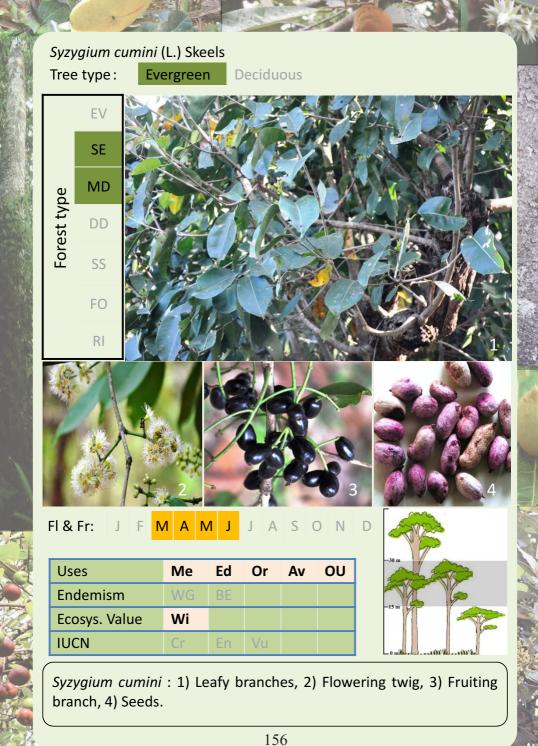
Kannada name: Kuntu-nerale

Field Identification: Small trees to large shrubs with terete, brownish branches with dark green, thick, obovate, opposite leaves. Trees near stream have aerial roots.

Botanical description: Leaves obovate to oblanceolate, up to 10×5.5 cm, coriaceous, lateral nerves numerous, apex obtuse or suddenly bluntly acuminate, shining above, pale and gland dotted beneath, coriaceous. Flowers sub-sessile, white, in terminal corymbose dichotomous cymes with quadrangular branches. Petals calyptrate, sub-orbicular. Berry depressed globose, up to 8-10 mm in diam.

Habitat: Common along streams, moist areas, and coastal laterite forests.

Uses: Fruits edible. Flowers host to numerous insect population including bees, butterflies, wasps etc.



SYZYGIUM CUMINI (L.) Skeels

Family: Myrtaceae

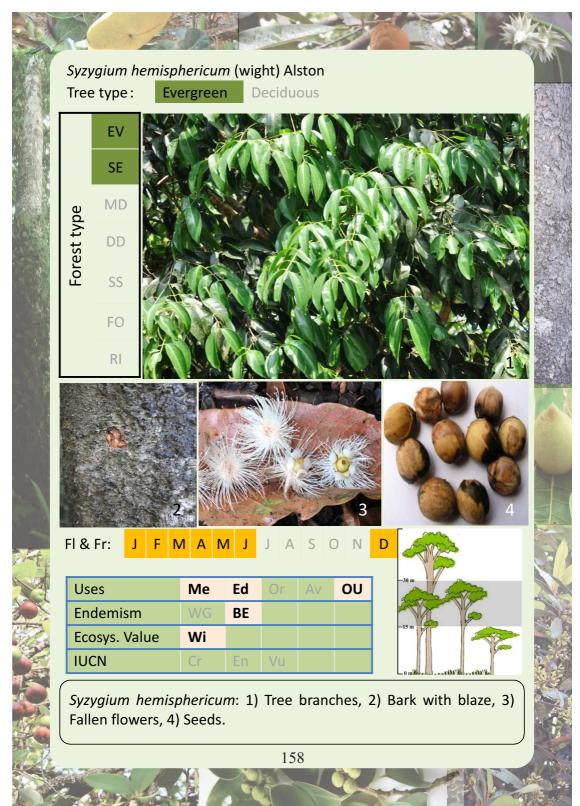
Kannada name: Nerale mara

Field Identification: Old trees having cracked bark, and sometimes with shallow depressions. Leaves fragrant when crushed. (Leaves differs from *S. gardneri* which have caudate-acuminate narrow leaves, and *S. hemisphericum* which have light brownish-grey smooth bark, and thicker leaves).

Botanical description: Leaves slender, opposite; blade elliptic to ovate-lanceolate, obtuse-acuminate, 10-14 x 3-6 cm; pellucid-dotted, with intra-marginal nerves, lateral nerves very numerous and close; petiole up to 1.2 cm long. Flowers whitish, sweet scented in compound trichotomous cymes. Calyx tube turbinate, 0.5 cm long. Corolla covered by cap like appendage (calyptrate). Berry globose or oblong, 1.2-3.8 cm long, black-purple.

Habitat: In semi-evergreen to moist deciduous forest. **Uses**: Used for medicinal purpose. Fruits edible and important food source for wild animals and birds. Wood Used for agricultural implements and construction purposes.

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SYZYGIUM HEMISPHERICUM (Wight) Alston

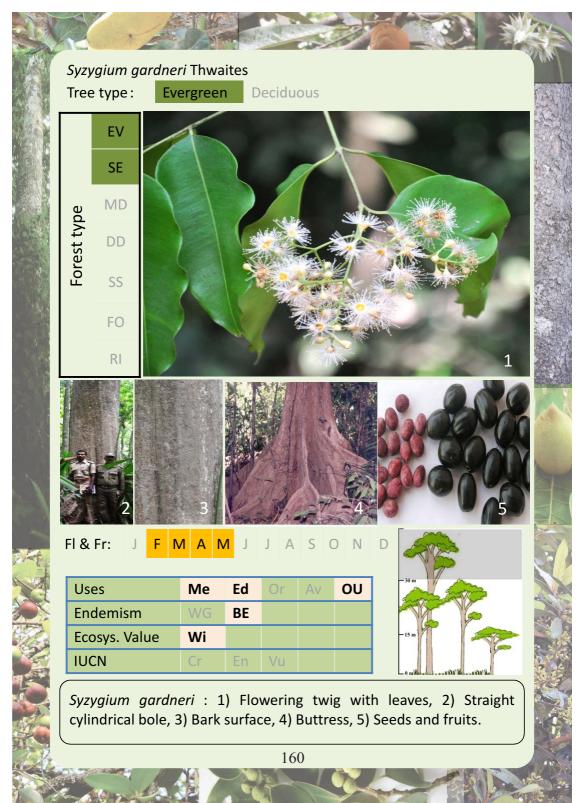
Family: Myrtaceae

Kannada name: Bana nerale

Field Identification: Bark light brownish-grey, moderately hard, sometimes with small aerial roots from base. (Also see *S.cumini*).

Botanical description: Leaves opposite, up to 12 x 6 cm, ovate-lanceolate or oblanceolate, base tapering, acuminate or obtuse at apex, nerves inconspicuous above, more prominent beneath, coriaceous, minutely dotted; petioles up to 1.2 cm long. Flowers in axillary and terminal panicled cymes, up to 3 cm across, fragrant, white. Calyx 0.6-1 cm long, tube hemispherical. Petals c. 8 mm long, suborbicular. Berry c. 2.5 cm in diam., globose, purple, crowned with calyx lobes.

Habitat: In evergreen to semi-evergreen forest in moist areas and along streams.



SYZYGIUM GARDNERI Thwaites

Family: Myrtaceae

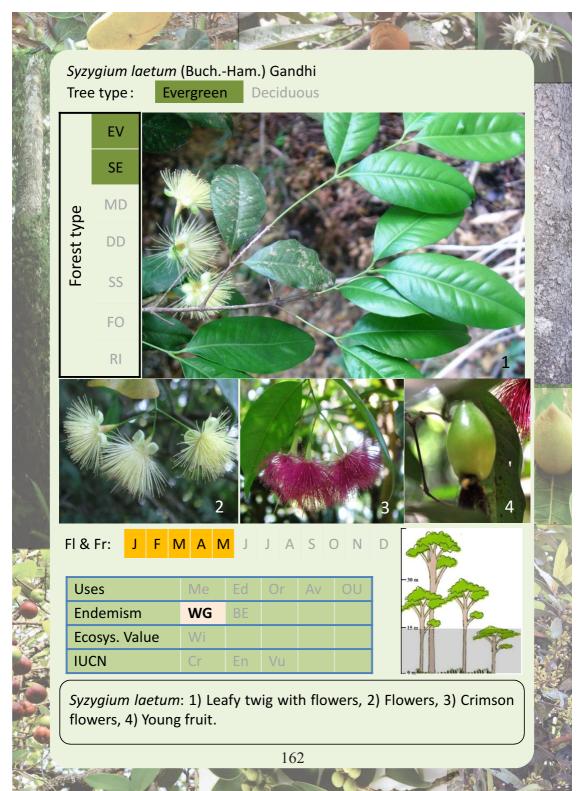
Kannada name: Neer-nerale, Bilitrupa

Field Identification: Large buttressed tree with huge cylindrical boles and characteristic yellowish-white, smooth bark. Inner wood dirty dull yellow to brown. Leaves fragrant when crushed with undulating margins and numerous parallel nerves.

Botanical description: Leaves opposite, up to 11 x 5 cm, ovate-lanceolate, base acute, apex usually caudate-acuminate, minutely pellucid-dotted; lateral nerves conspicuous, numerous, parallel, united in an intra marginal nerve. Flowers in terminal or axillary cymes, white. Calyx tube funnel shaped. Petals calyptrate, c. 3 mm long, elliptic, concave. Berry c. 1 cm across, ellipsoid, purple.

Habitat: Frequent in evergreen forest.

Uses: Important tree species for wild life for food and shelter.



SYZYGIUM LAETUM (Buch.-Ham.) Gandhi

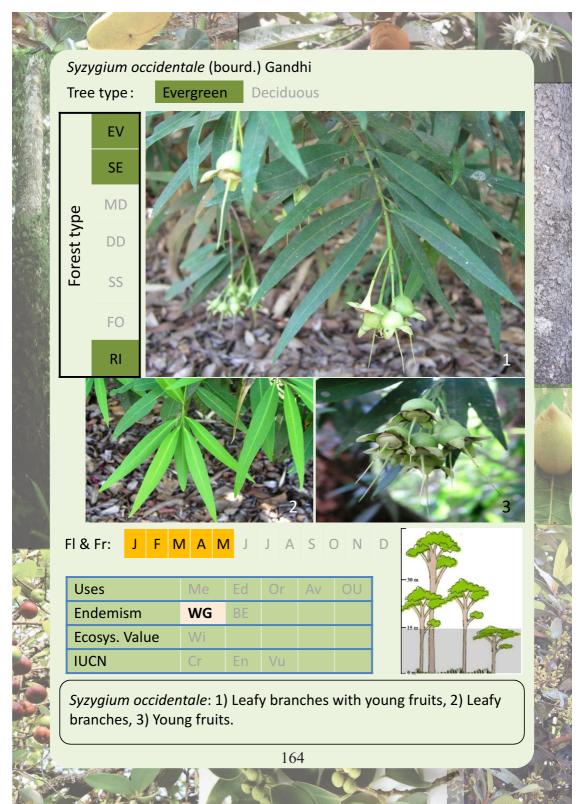
Family: Myrtaceae

Field Identification: Small trees to large shrubs with terete, brownish branches with dark green, thick, obovate, opposite leaves. Trees near stream have aerial roots.

Botanical description: Leaves obovate to oblanceolate, up to 10×5.5 cm, coriaceous, lateral nerves numerous, apex obtuse or suddenly bluntly acuminate, shining above, pale and gland dotted beneath, coriaceous. Flowers sub-sessile, white, in terminal corymbose dichotomous cymes with quadrangular branches. Petals calyptrate, sub-orbicular. Berry depressed globose, up to 8-10 mm in diam.

Habitat: Common along streams, moist areas, and coastal laterite forests.

Uses: Fruits edible. Flowers host to numerous insect population including bees, butterflies, wasps etc.



SYZYGIUM OCCIDENTALE (Bourd.) Gandhi

Family: Myrtaceae

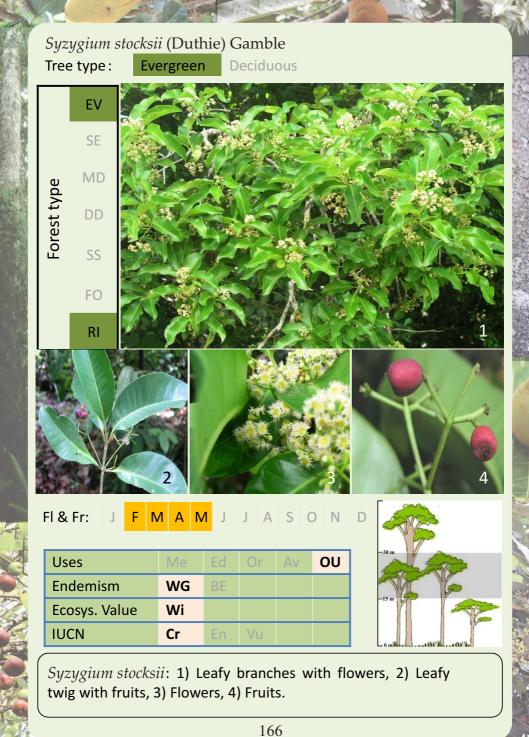
Synonym: Eugenia occidentalis Bourd.

Field Identification: Small trees with long narrow lanceolate leaves, narrowed at both ends, rare along streams.

Botanical description: Leaves opposite, up to 21 x 3.5 cm, lanceolate, narrowed at both ends, slightly coriaceous. Flowers in terminal cymes, large. Calyx broadly turbinate above. Petals orbicular, white. Berry globose, c. 2 cm across.

Habitat: Very rare in evergreen to semi-evergreen forest along streams.

Ittara K	annada
	Jttara K



SYZYGIUM STOCKSII (Duthie) Gamble

Family: Myrtaceae

Synonym: Syzygium travancoricum Gamble

Field Identification: Large stream/swamp-side trees with scaly, brownish-grey bark somewhat smooth, slightly buttressed. Young twigs 4-angled and winged, more pronounced in saplings.

Botanical description: Young twigs 4-angled and winged. Leaves opposite, up to 22 x 10 cm, broad elliptic to elliptic, obtuse to acuminate at apex, narrowed at base, intramarginal veins distinct, glabrous, coriaceous. Cymes mostly axillary, sometimes terminal. Flowers small, c.4 mm, creamy white. Berry purple, depressed globose, 1.5 cm long.

Habitat: Very rare; in undisturbed evergreen forest, near streams and swamps.

Distribution in Uttara Kannada

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SYZYGIUM ZEYLANICUM (L.) DC.

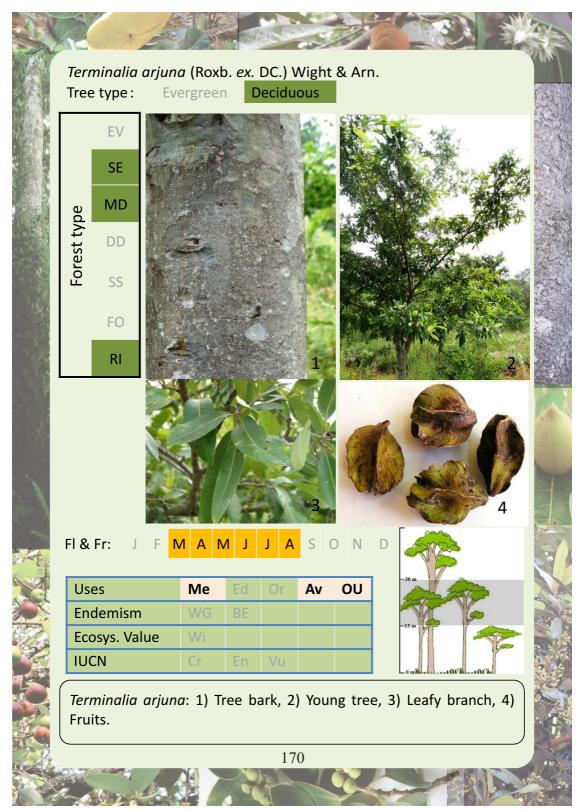
Family: Myrtaceae

Synonym: Eugenia zeylanica (L.) Wight

Field Identification: Young branches reddish-brown to grey. Leaves with prominent secondary and intramarginal veins with acuminate apex.

Botanical description: Leaves opposite, 10 X 3.5 cm, ovatelanceolate to elliptic, margins recurved, apex acuminate to long acuminate, base acute to rounded, with clearly marked intramarginal nerve. Flowers white, in axillary and terminal paniculate cyme. Petals orbicular. Berry c. 5 mm in diam., sub-globose, white, 1-seeded.

Habitat: Evergreen to semi-evergreen forest along streams. **Uses**: Fruits edible.



TERMINALIA ARJUNA (Roxb. ex. DC.) Wight & Arn.

Family: Combretaceae

Synonym: *Terminalia cuneata* Roth.

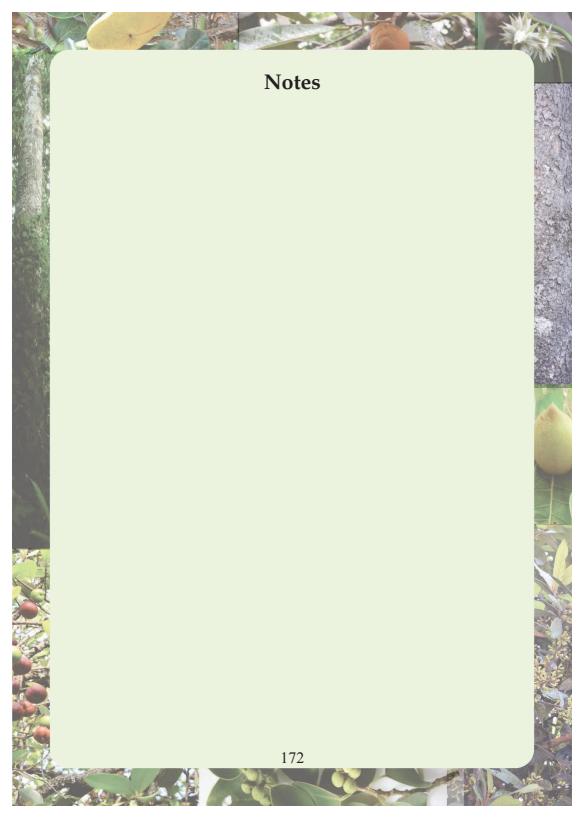
Kannada name: Holematti

Field Identification: Bark greyish-white, smooth, peeling into large flakes. Leaves usually crenulate; petioles with 2 glands near its apex.

Botanical description: Leaves 6-18 x 3-5.5 cm, often sub-opposite, crenulate, oblong or elliptic; petiole short, with 2 glands near its apex, base rounded or sub-cordate, glabrous; glands 1-2 at the base of midrib. Flowers yellow, sessile, in short axillary terminal panicles. Calyx glabrous. Drupes 3-5 cm long, with 5 equal hard wings, usually notched near the top.

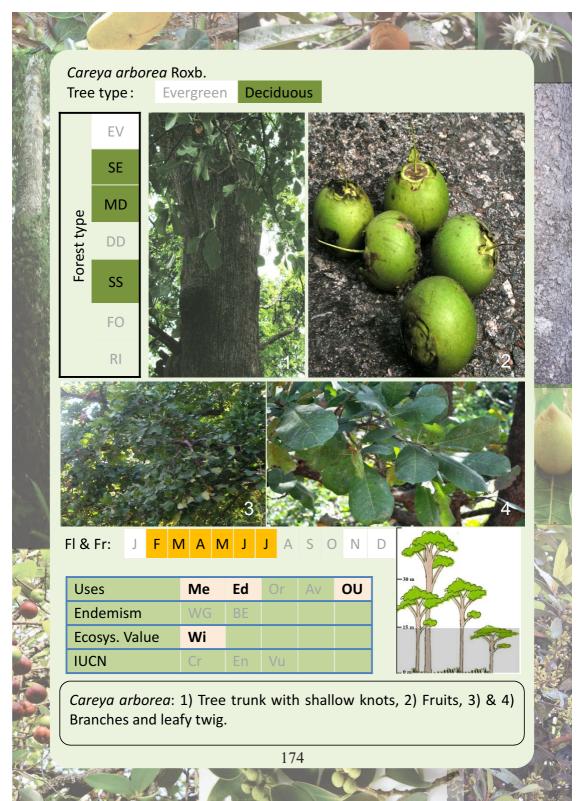
Habitat: Occasionally seen along river banks.

Uses: Bark widely used for medicinal purpose. Wood used for construction purpose.



I. Trees With Simple, Alternate And Serrate/ Dentate/Crenate Leaves





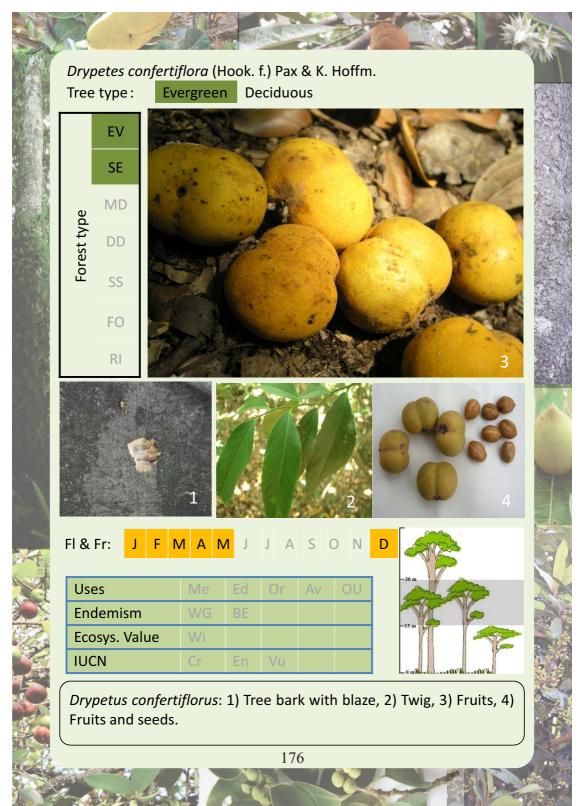
CAREYA ARBOREA Roxb.

Family: Lecythidaceae **Kan**: Kavlu mara, Daddala

Field Identification: Small to medium trees with knotted trunks. Leaves somewhat crowded towards the ends of the branches and usually sessile.

Botanical description: Leaves alternate, usually sessile, crenate-denticulate, obovate, shortly acuminate, to 10-30 x 5-15 cm, glabrous. Inflorescence a short, few flowered spike; peduncle woody. Flowers sessile, 3-6 cm across, yellowish-white. Calyx 2-2.5 cm long; tube companulate. Petals elliptic-oblong. Berries 5-9 cm across, green.

Habitat: In forest edges, hill tops, and scrub-savannas. **Uses**: Bark, leaves, flowers and fruits medicinal; for snakebite and ulcers. Fruits edible. Elephants feed on tender shoots, Hanuman Langur feed on fruits.



DRYPETES CONFERTIFLORA (Hook. f.) Pax & K. Hoffm.

Family: Putranjivaceae

Synonym: Cyclostemon confertiflorus Hook. f.

Kannada name: Augai-mara

Field Identification: Large trees with fluted stems. Thick, large, distantly serrate leaves which are often un-equal sided at base.

Botanical description: Bark grey, smooth. Leaves up to 20 x 7.5 cm, oblong or oblong-elliptic, obtusely acuminate at apex, glabrous, with distantly serrate or entire undulating margins. Male flowers in clusters of old wood., shortly pedicelled, stamens c.20; female flowers nearly sessile; sepals 6. Fruits yellow, smooth, size of a small orange, flattened, 2-seeded.

Habitat: Rare presence in evergreen forests. **Uses:** Fruits reported as eaten by Sambar deer.

Ittara K	annada
	Jttara K



ELAEOCARPUS SERRATUS L.

Family: Elaeocarpaceae Kannada name: Changbale

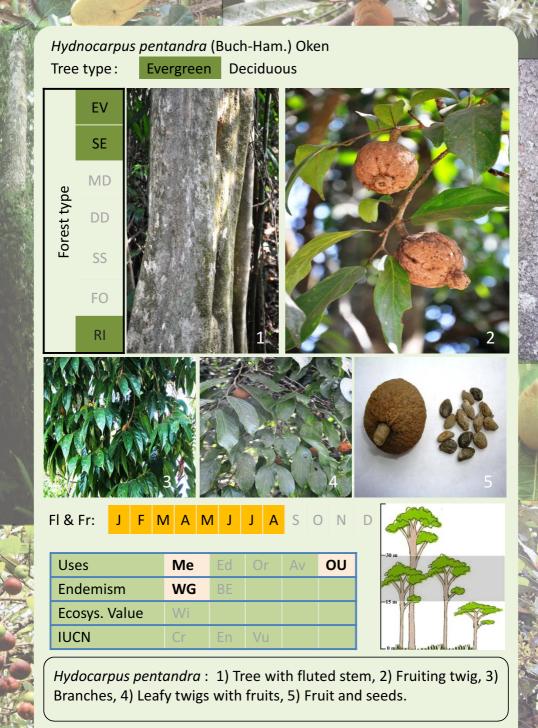
Field Identification: Trees with occasional stilt roots. Leaves turn red on maturity, crenate margin and often with glandular thickenings. Petioles with 2 small glands on sides at apex. (Differs from *E. glandulosus* due to smaller leaves; the latter has brown sepals linear glands in leaf margins).

Botanical description: Leaves alternate or opposite, 5-11.5 x 3-5 cm, elliptic-oblong or obovate, base acute, apex acute or shortly acuminate, margins irregularly crenate, glabrous with often glandular thickenings in nerve axils; petioles 1-2 cm. Flowers white in drooping racemes, 5-8 cm long. Sepals 4-5, acute, glandular. Petals 7-8 mm long, laciniate half way down. Stamens c. 30. Drupes up to 4 cm long, bluntly pointed at apex. Stone oblong, much tuberculated.

Habitat: Evergreen to semi-evergreen forest mostly riverine and wet areas.

Uses: Hanuman Langur and Bonnet Macaque known to feed on fruits. Fruits edible and used medicinally.

Distribution in	Uttara	Kannad	la
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HYDNOCARPUS PENTANDRA (Buch-Ham.) Oken

Family: Achariaceae

Synonym: Hydnocarpus laurifolia (Dennst.) Sleumer

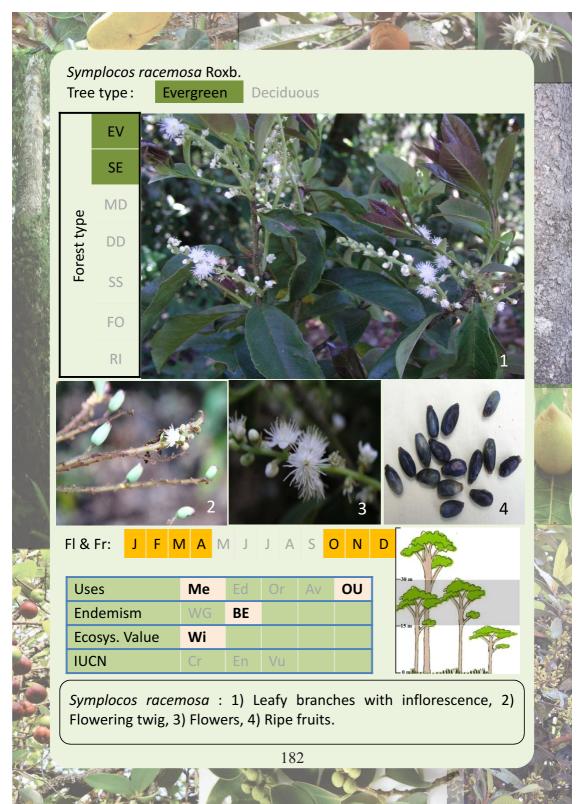
Kannada name: Toratti, Chaal yennemara.

Field Identification: Tree bole somewhat fluted; sometimes knotted; bark whitish-grey. Wood yellow, hard. Leaves distantly serrate, acuminate. Upper half of the petiole inflated.

Botanical description: Young parts brown pubescent. Leaves alternate, 10-22 x 4-10 cm, ovate or oblong-lanceolate, acuminate, entire or distantly serrate; stipules linear, pubescent. Flowers dioecious, in axillary cymes or solitary, white. Sepals 5, unequal, the 3 inner longest. Petals ciliate, 5, free, each with a pilose basal scale. Stamens 5, villous at base.; stigma 5-lobed. Fruit globose, brown with somewhat woody and rough rind; 5-10 cm across, globose, hard, brown-tomentose, with 15-20 striate seeds.

Habitat: Mostly riverine and wet valley areas in evergreen to semi-evergreen forest.

Uses: Seeds yield an yellow oil used for burning and in native medicine for skin diseases and rheumatism. Considered useful in early stages of leprosy. Fruits used for fish poisoning. Wood smooth, soft, used for packing cases, takes good finish.



SYMPLOCOS RACEMOSA Roxb.

Family: Symplocaceae

Synonym: *S. beddomei* C.B. Clarke.

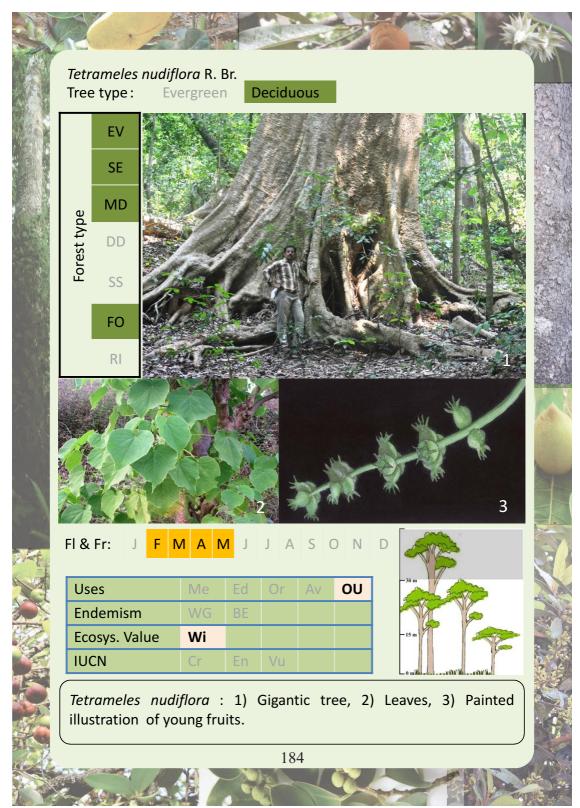
Kannada name: Lodhra

Field Identification: Bark greyish yellow with large open lenticels; inner bark yellow, soft. Leaf margins glandular serrate and petiole often dark coloured.

Botanical description: Leaves alternate, up to 16 x 6.5 cm, elliptic or elliptic oblong, acute to acuminate at apex, crenate-serrate, coriaceous, dark green shining above, paler beneath; petioles up to 1.5 cm long. Flowers white, sessile or shortly pedicelled, fragrant, in pubescent spikes or racemes, up to 15 cm long, usually unbranched. Calyx lobes 5, glabrous. Corolla nearly divided to the base, up to 7.5 mm long. Drupe ellipsoid to ovoid, up to 1.5 cm long, dark blue when ripe.

Habitat: Evergreen to semi-evergreen forest in moist areas. **Uses**: Young leaves and fruits eaten by wild animals such as Hanuman Langur.

Distribution in Uttara Kannada



TETRAMELES NUDIFLORA R. Br.

Family: Tetramelaceae

Kannada name: Bondsa, Kadbende

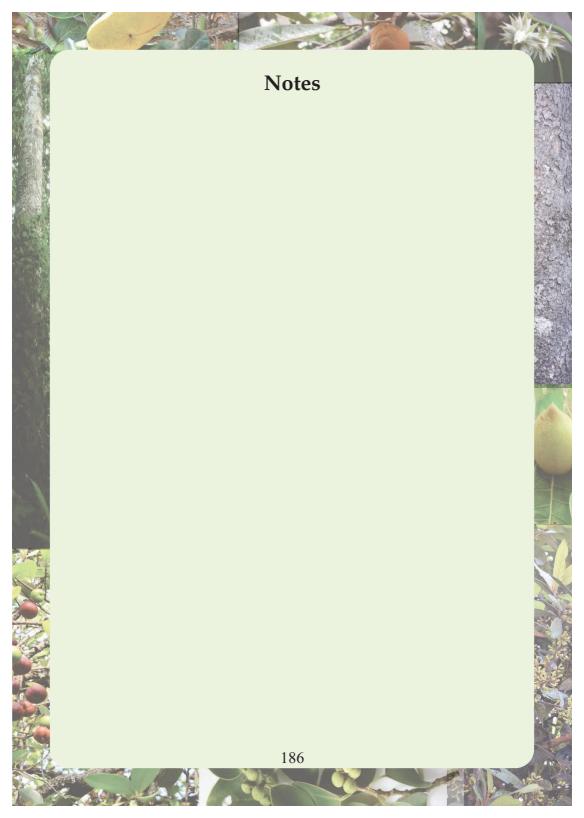
Field Identification: Huge trees with large buttresses; bark smooth and greyish white, lenticellate; inner wood yellow, very soft. Leaves cordate, 3-5 nerved from base, irregularly serrate. (Slightly resembles *Trewia nudiflora* which has opposite leaf and margin entire).

Botanical description: Leaves alternate, appearing after the flowers, more or less in whorls, up to 15 x 13.5 cm, broadly ovate, irregularly serrate, base cordate, bright green above, paler beneath with soft hairy reticulate venation; petiole up to 15 cm long, pubescent. Flowers numerous, yellowish, small. Male flowers in erect, terminal, pubescent panicles; females in pendulous, pubescent spikes. Male flowers calyx lobes 4; stamens 4. Fruit a membranous capsule, up to 5 mm across, ovoid-urceolate, 8-ribbed.

Habitat: Forest openings in evergreen to semi-evergreen forest.

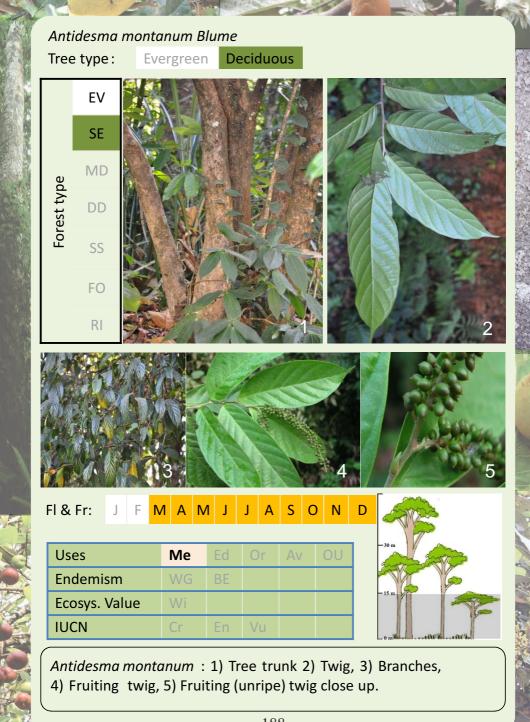
Uses: Important host plant for rock bees (*Apis dorsata*). The huge tree forms small cave like shelters from their large buttress and hollow stem, used temporarily by many small and big wild animals.

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J. Trees With Simple, Alternate And Entire Leaves





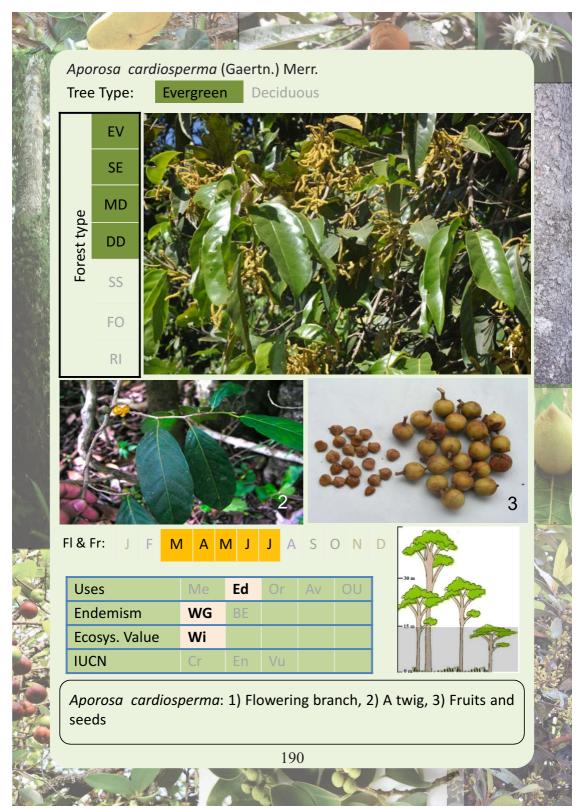
ANTIDESMA MONTANUM BLUME

Family: Phyllanthaceae **Kan**: Kadivala soppu

Field Identification: Presence of large sub-persistent ovate-lanceolate stipules.

Botanical description: Small trees. Leaf blade to 12-25 x 3-10 cm, elliptic-oblong, base rounded, apex acute to acuminate, glabrous; stipules ovate-lanceolate, longer than the petioles. Flowers shortly pedicelled, greenish yellow in paniculate racemes or spikes. Calyx lobes 4, hairy. Stamens 3-5. Drupe somewhat oblique, tipped by stigmas, 1-seeded, turning red with age.

Habitat: Margins of evergreen to semi-evergreen forests and in humid disturbed forests.



APOROSA CARDIOSPERMA (Gaertn.) Merr.

Family: Phyllanthaceae

Synonym: *Aporosa lindleyana* (Wight) Baill.

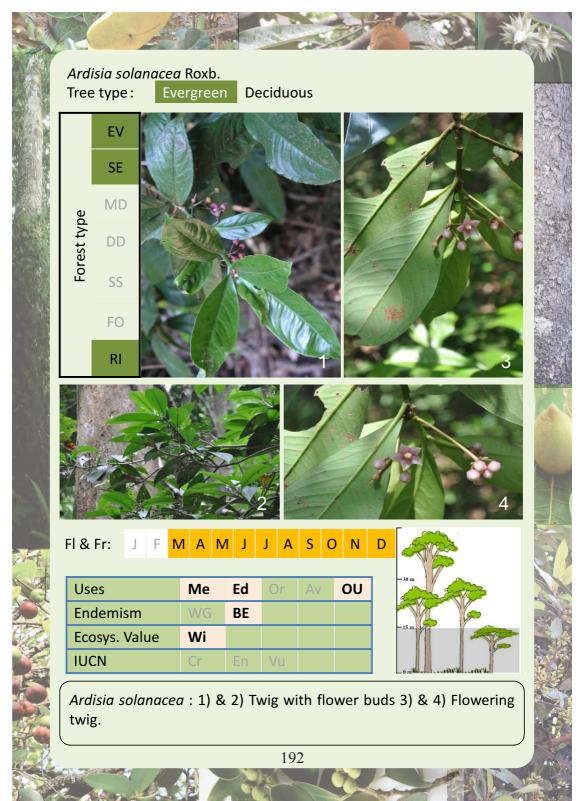
Kannada name: Salle mara

Field Identification: Bark thin with yellow inner wood.

Fruit a globose capsule pointed with the style.

Botanical description: Leaves simple, alternate; stipules oblong-lanceolate, acute, caducous; petiole stout, grooved above, glabrous; leaves up to 17 x 5 cm, narrow oblong to narrow elliptic, apex gradually acuminate to caudate-acuminate, base acute to rounded, glabrous; midrib raised above; secondary nerves 6-9 pairs. Flowers unisexual; male flowers: yellow, solitary or clustered in axillary spikes. Female flowers: pale green, 3-8 together, in densely tomentose small racemes. Fruit a capsule 10-12 mm across, globose, yellow, glabrous, pointed with the style.

Habitat: Frequent in forest edges and open forest. **Uses**: Fruits eaten by wild animals and birds



ARDISIA SOLANACEA Roxb.

Family: Primulaceae

Kannada name: Bodina gida

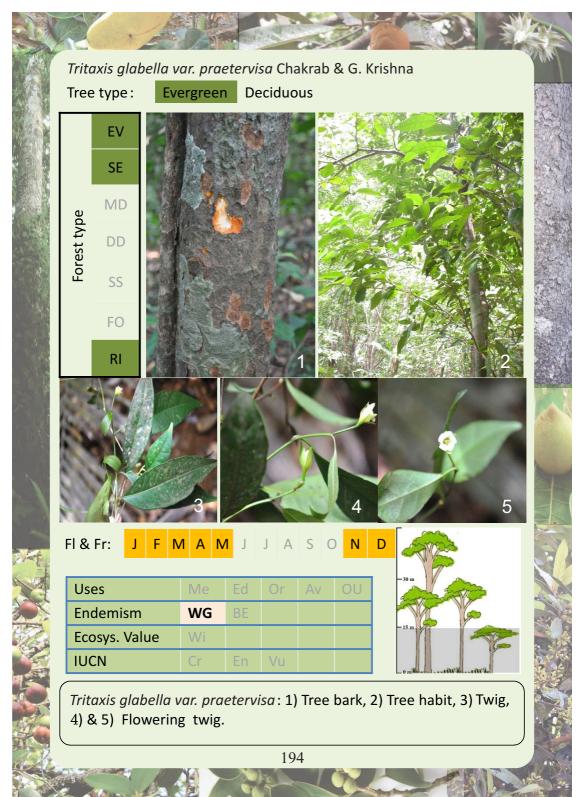
Field Identification: Branches have prominent scars of fallen leaves. Leaves gland dotted.

Botanical description: Small trees or shrubs; very soft wooded. Leaves alternate, thick and soft with faintly visible veins; up to 25 x 7.5 cm, sessile to shortly petiolate, obovate-oblong, base cuneate. Flowers in axillary corymbose cymes. Calyx 5-lobed, densely gland dotted. Corolla waxy pink; petals basally united, lobes 8-9 mm long. Drupes 0.7-1.3 cm across, depressed globose, apiculate, purplish black when ripe and with coloured sap.

Habitat: Shady moist places, stream-sides and in open meadows of semi-evergreen forests.

Uses: Leaves used as salad. Roots, leaves and bark medicinal. Indian Giant squirrel feeds on fruits and leaves.

Distribution in	Uttara	Kannad	la
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TRITAXIS GLABELLA VAR. PRAETERVISA

Chakrab & G. Krishna

Family: Euphorbiaceae

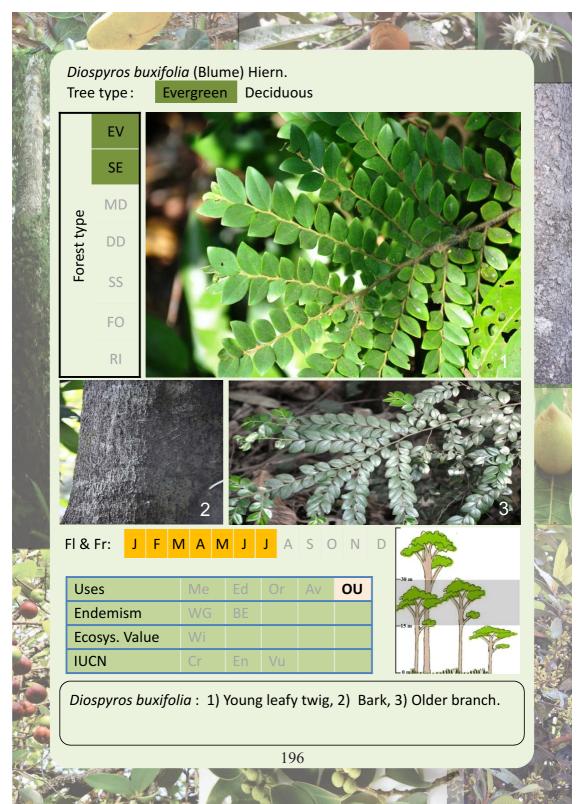
Synonym: *Dimorphocalyx lawianus* (Mull. Arg.) Hook. f.; *Dimorphocalyx glabellus* Thwaites var. *lawianus* (Hook. f.) Chakrab & N.P. Balakr.

Field Identification: Small tree, dark outer bark and orange inner bark. Outer bark peels off leaving roundish marks on the stem.

Botanical description: Leaves alternate, 6-17.5 x 3-7 cm, elliptic-oblong or lanceolate, apex obtusely-acuminate, glabrous, paler beneath; small glands on undulating margins. Pedicels c. 5 mm long. Flowers dioecious. Male flowers solitary on old wood. Calyx 5-lobed, cupular. Petals 5, white., reflexed at tip; disc of 5 glands. Stamens 10-14 in two rows. Female flowers in leaf apposed clusters, larger than male flower; calyx 5, unequal, much longer than petals, enlarged in fruits. Ovary 3-celled, densely hairy. Fruit a capsule of 3, 2-valved cocci, 1-1.5 cm across, 3-lobed, surrounded at base by persistent calyx lobes.

Habitat: Mostly stream sides along boulders and wet valleys.

Distribution	in Uttara	Kannada
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DIOSPYROS BUXIFOLIA (Blume) Hiern.

Family: Ebenaceae

Synonym: Diospyros microphylla Bedd.

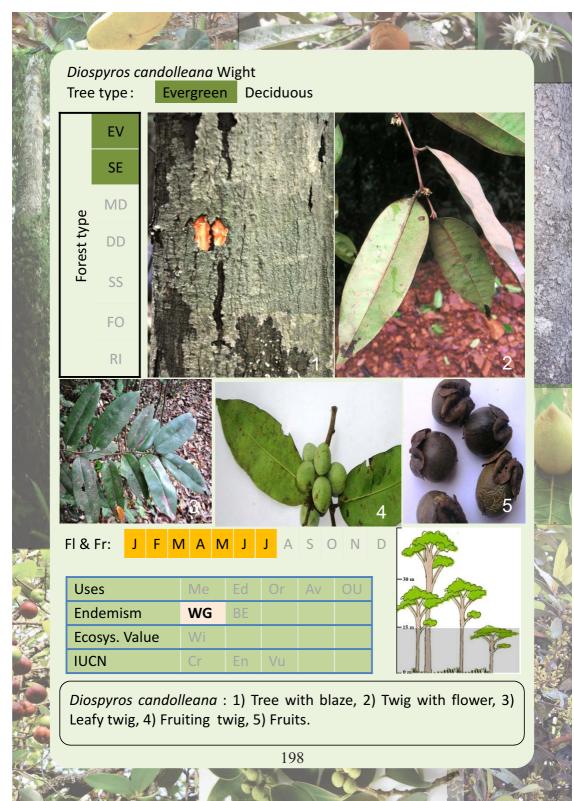
Kan: Kunchiganamara

Field Identification: Large, buttressed trees with spectacularly appearing crowns of dark green small leaves; Branchlets covered with long, golden yellow hairs. Bark dark to dark grey.

Botanical description: Leaves alternate, 2-5 x 1-2.5 cm, elliptic-ovate, acute at both ends, hirsute with yellow long hairs, glabrous when old except on midrib, sub-sessile. Male flowers small, 1-3 together in small axillary cymes. Corolla white, urceolate; lobes ciliate on margins. Stamens 16. Female flower solitary. Ovary 4-celled. Fruits ovoid, up to 1.9 cm long, single seeded, glabrous.

Habitat: In evergreen to semi-evergreen forest.

Distribution in Uttara Kannada



DIOSPYROS CANDOLLEANA Wight

Family: Ebenaceae

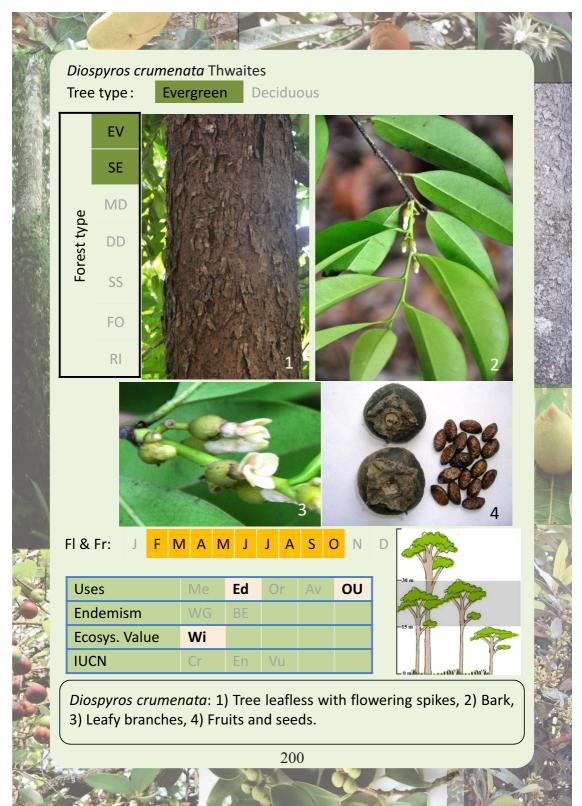
Kannada name: Kari-mara

Field Identification: Smaller to moderately tall evergreen trees with greyish-black bark, inner wood reddish-pink. Fruit having cup shaped, enlarged calyx, 5-lobed half-way. (Trees similar to *D.oocarpa* which has smaller ovatelanceolate leaves and cylindrical fruits, and to *D.paniculata*, which has more shining leaves and prominently reticulated veins, compared to fulvous pubescence and indistinct venation and of *D. candolleana*).

Botanical description: Leaves to 20 x 5.5 cm, elliptic or oblong, bluntly acuminate at apex, glabrous, reddishbrown beneath when dry. Midrib prominent beneath, chanelled above. Venation indistinct. Male flowers sessile, in dense axillary fulvous pubescent clusters. Calyx tubular, silken hairs outside. Corolla, tubular, fulvous hairy outside. Stamens 10, in 5 pairs. Female flower larger than the male, sessile. Calyx with reflexed margins. Fruit globose, up to 2.5 cm across. Seed with ruminate endosperm.

Habitat: In evergreen to semi-evergreen forest

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DIOSPYROS CRUMENATA Thwaites.

Family: Ebenaceae

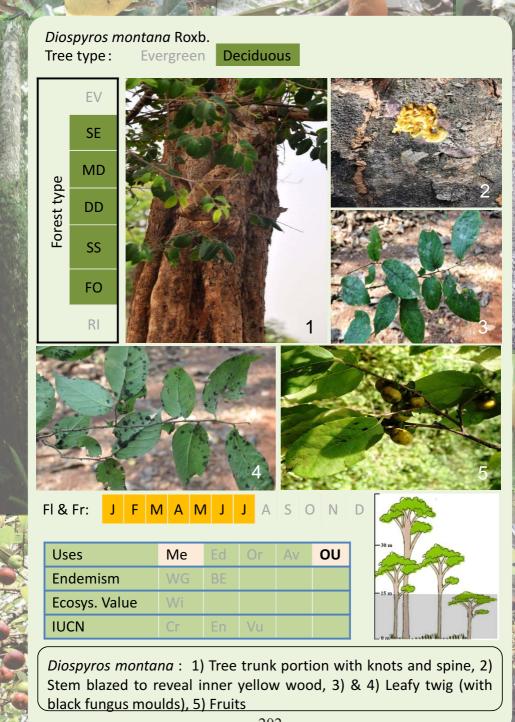
Kannada name: Kari tumari mara

Field Identification: Bark greyish to black with depressions, scaly. Branchlets glabrous. Leaves shining on both sides. (Differs from *D. ebenum* which have glabrous male flowers, and fruiting calyx lobes not flat but reflexed out).

Botanical description: Leaves alternate, up to 7-12 x 2.5-5 cm, elliptic or elliptic-oblong, obtusely abruptly subacuminate at apex, base cuneate, coriaceous, fully glabrous, shining on both sides; midrin channeled, slightly raised beneath. Male flowers usually 3, hairy cymes bent downwards. Calyx 5-6 mm long, companulate, tomentose outside, obscurely 4-toothed. Corolla creamy white to yellow, tubular, 10-12 mm long, fulvous tomentose outside, tube narrowing at apex. Fruit a berry, 3-6 cm in diam., globose, glabrous; fruiting calyx flattened, tetrahedral.

Habitat: Evergreen to semi-evergreen forest

Distribution	ın U	ittara	Kannada



DIOSPYROS MONTANA Roxb.

Family: Ebenaceae

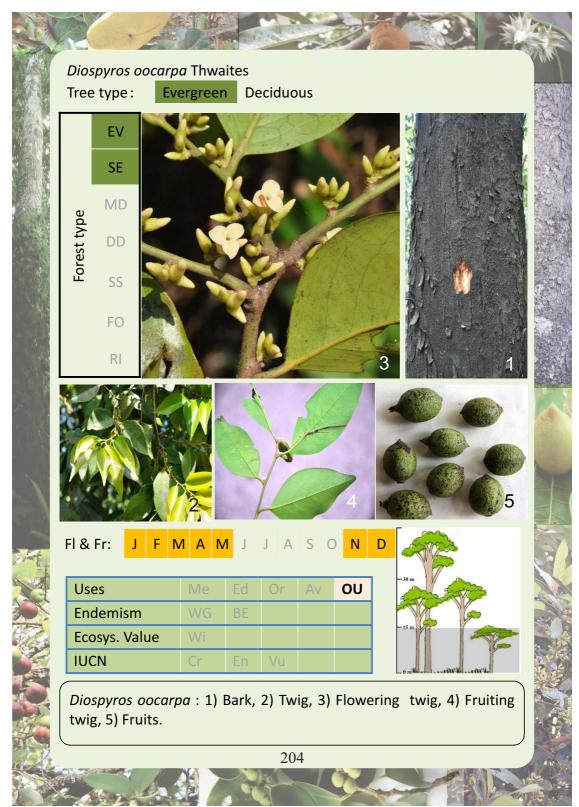
Kannada name: Balagunike

Field Identification: Small, deciduous tree with knotty trunks, and simple to branched thorns. Inner wood yellow, rapidly turning to dark shade when blazed.

Botanical description: Young branches softly pubescent. Leaves up to 11 x 5.5 cm, rounded or sub-cordate at base, glabrous when old. Male flower 4-merous, usually 2-6, in short axillary or extra axillary cymes. Calyx tomentose and ciliate on margins. Corolla white, urceolate, twice as long as calyx. Female flower solitary, larger than males; styles 4. Fruit c. 2.5 cm across, fulvous hairy when young, brown or yellow and glabrous on maturity.

Habitat: Deciduous forests and scrub.

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DIOSPYROS OOCARPA Thwaites

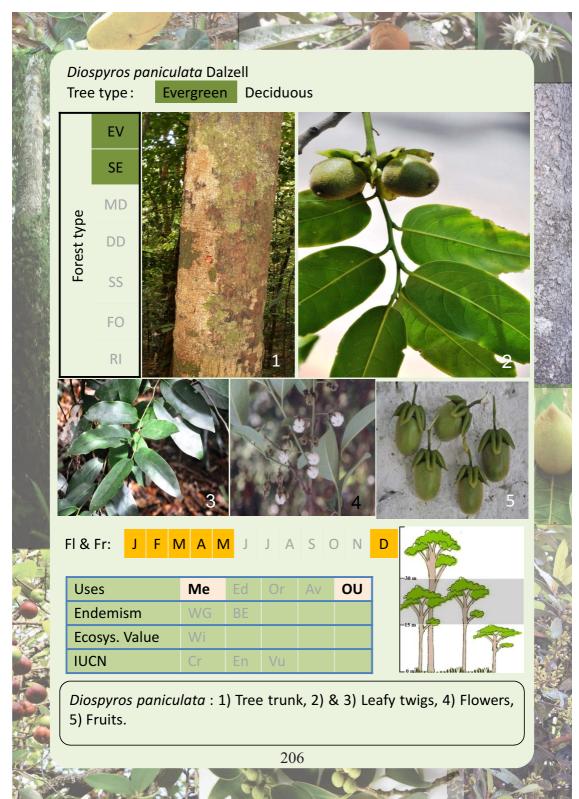
Family: Ebenaceae

Field Identification: Small evergreen trees. Bark dark greyish black with inner pinkish-red wood when blazed. Fruits greenish, rough, cylindrical on flat cup shaped calyx.

Botanical description: Leaves to 12 x 7.5 cm, ovate-elliptic, or ovate-lanceolate, obtusely acuminate at apex. Male flower shortly pedicelled, in short few flowered axillary cymes. Corolla tubular, yellow, 3-4 lobed. Stamens 10-12, in sub equal pairs. Female flowers 1-3 together, larger than males. Fruits up to 2.5 cm long, oblong-ovoid, seated on flat cup shaped calyx.

Habitat: Evergreen to semi-evergreen forests; often on river banks within forests.

Ittara K	annada
	Jttara K



DIOSPYROS PANICULATA Dalzell

Family: Ebenaceae

Field Identification: Medium sized evergreen tree. Stem often with grey blotches; twigs somewhat angular. Leaves glabrous, finely reticulated and conspicuously veined, small black sparse hairs on mid vein below.

Botanical description: Leaves 20 x 7.5 cm, oblong-lanceolate, obtusely acuminate at apex, base acute or rounded, coriaceous, glabrous, shining above. Male flowers in paniculate cymes, from axils of fallen leaves. Calyx c.9 mm long, broad foliaceous, laterally reflexed, black pubescent. Corolla 10-15 mm long, tubular. Stamens 15-20. Female flowers, solitary, axillary. Fruit ovoid, up to 4 cm long, hirsute when young, becoming glabrous with age. Seated on enlarged persistent calyx, lobes auricled at base.

Habitat: Common trees in evergreen to semi-evergreen forest in Ghats.

Distribution in	Uttara K	Kannada
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DIOSPYROS RIDLEYI Bakh.

Family: Ebenaceae

Synonym: Diospyros pyrrhocarpoides Ramesh & Franceschi; Diospyros pyrrhocarpa Mig. var. andamanica Kurz.

Field Identification: Bark dark, rough, scaly. Twigs glabrous with dark and light shades on twigs. Leaves thick, glabrous with midrib channeled above and dark green, paler beneath; lateral nerves finely reticulate.

Botanical description: Leaves alternate, broadly ellipticoblong to ovate, up to 6.5-9 x 2.5 - 4.5 cm, bluntly acuminate at apex, glabrous on both sides. Male flowers subsessile in golden brown pubescent cymes. Corolla tubular, creamy white. Female flowers sessile, solitary, axillary. Fruits globose, 1.5-3 cm in diam., sessile or sub-sessile, densely brown tomentose when young, glabrous with age; fruiting calyx lobes strongly reflexed.

Habitat: Evergreen forest in Ghats.

Distribution in Uttara Kannada

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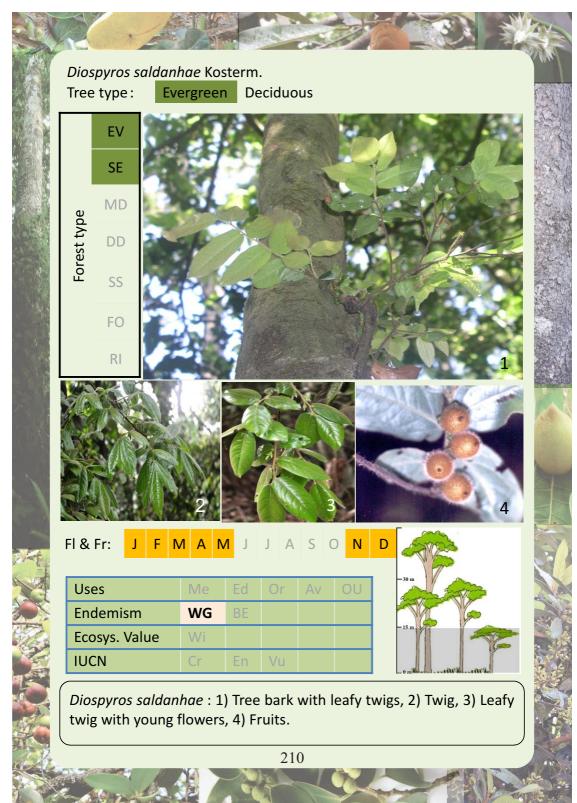
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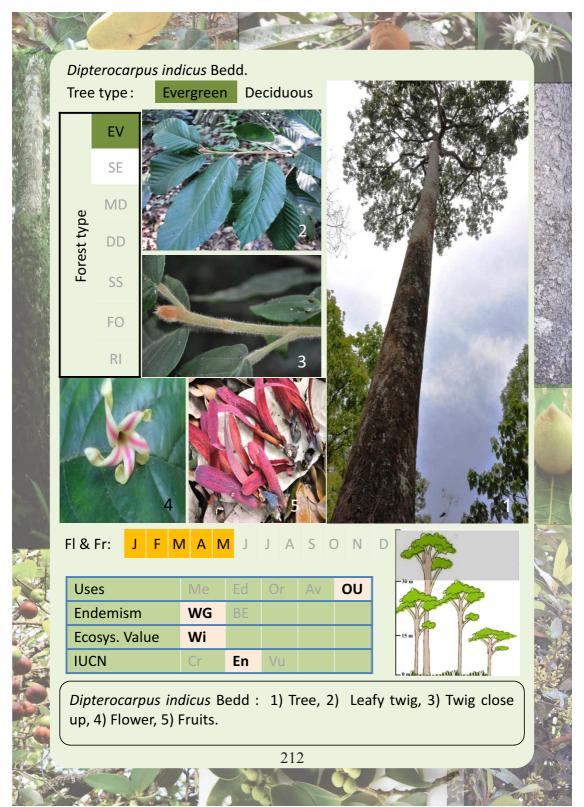
DIOSPYROS SALDANHAE Kosterm.

Family: Ebenaceae

Field Identification: Small trees easily identified by their branchlets having soft bristly-hirsute hairs and leaves papery, with rounded or sub-cordate base. Berries with bristly hairs.

Botanical description: Leaves sub-sessile up to 14×6 cm, oblong-ovate, acute at apex, rounded or sub-cordate at base, glabrous above, sparsely hirsute beneath. Petiole up to 5 mm long. Female flowers in clusters of 1-3. Berries sessile or subsessile, up to 2×2.5 cm, ovate, bristly hairy; fruiting calyx lobes 4, rounded at apex. Seeds 3.

Habitat: Along wet and shady areas of evergreen to semievergreen forests.



DIPTEROCARPUS INDICUS Bedd.

Family: Dipterocarpaceae

Synonym: *Dipterocarpus turbinatus C.F. Gaertn*.

Kan: Dhooma, Gurjan

Field Identification: Lofty trees with tall, cylindrical stems unbranched to considerable height. Velvety hairy stipules, annular leaf scars along with two-winged fruits important. (Leaves might resemble *Artocarpus hirsutus* but without milky latex).

Botanical description: Young shoots short adpressed tomentose. Leaves c. 30 x 15 cm, elliptic or ovate, base truncate or acute, apex acute or bluntly acuminate, coriaceous, pubescent beneath, lateral nerves oblique, parallel, prominent beneath. Stipules covering terminal bud, oblong-ovate, acute, velvety, stellate hairy, caducous leaving annular scars. Flowers c. 5 cm across in axillary racemes. Petals 5, twisted. Fruit a 1-seeded nut, enclosed in enlarged calyx tube, up to 2.5 cm across, with 2 large erect wings, and 3 short ones.

Habitat: Primary evergreen forests.

Uses: Lion Tailed Macaques and Hanuman Langur feed on tender leaves and use the trees as habitats; Hornbills use the tree for nesting. Hosts canopy epiphytic flora. Wood hard and used as timber and plywood. Stem yields oleoresin.

Distribution in Uttara Kannada

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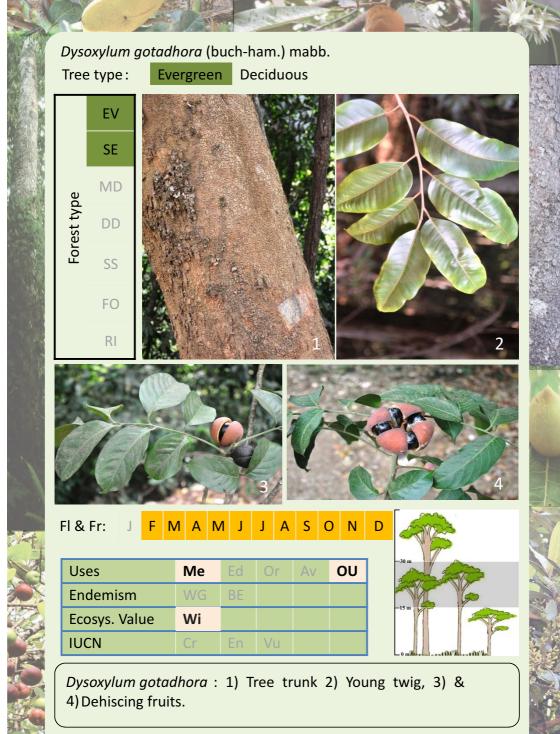
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DYSOXYLUM GOTADHORA (Buch-ham.) Mabb.

Family: Meliaceae

Synonym: Dysoxylum binactariferum (Roxb.) Hook. f.

ex.Bedd.

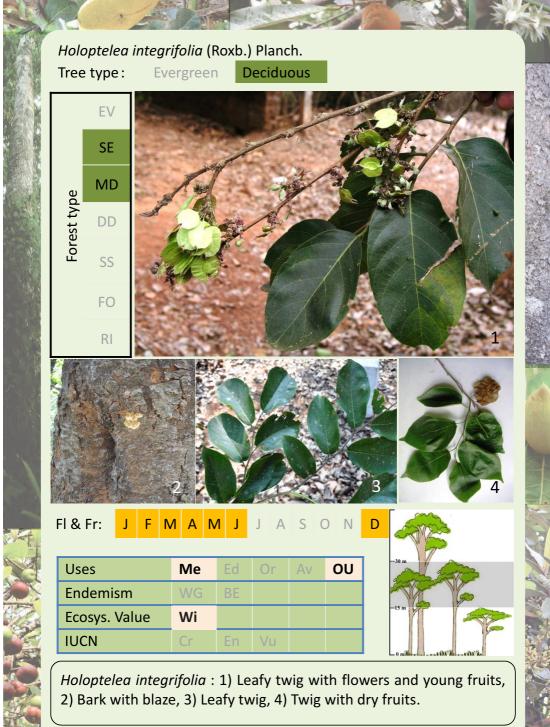
Kannada name: Kadu Gandha, Devadhari

Field Identification: Medium sized evergreen tree with imparipinnate leaves with alternate leaflets. Distinguished from *D. malabarica* by the absence of domatia in leaf nerve axils and wood not so strongly scented.

Botanical description: Leaves up to 35 cm long; leaflets 5-9, alternate, up to 14 x 5 cm, oblong-elliptic, acuminate, glabrous, entire or sometimes obscurely and distantly toothed, base sometimes unequal. Flowers c.9 mm long, in axillary or supra-axillary panicles, shorter than leaves. Calyx cupular, tometose outside. Petals 4, greenish-yellow to white, tomentose outside. Disc tubular, irregularly 8 toothed. Ovary 4-celled. Capsule obovoid, woody, 2-4 seeded, orange-red when ripe. Seeds c. 2.5 cm long, shining.

Habitat: Occasional and sometimes gregarious in semievergreen forest.

Distribution in Uttara Kannada



HOLOPTELEA INTEGRIFOLIA (Roxb.) Planch.

Family: Ulmaceae

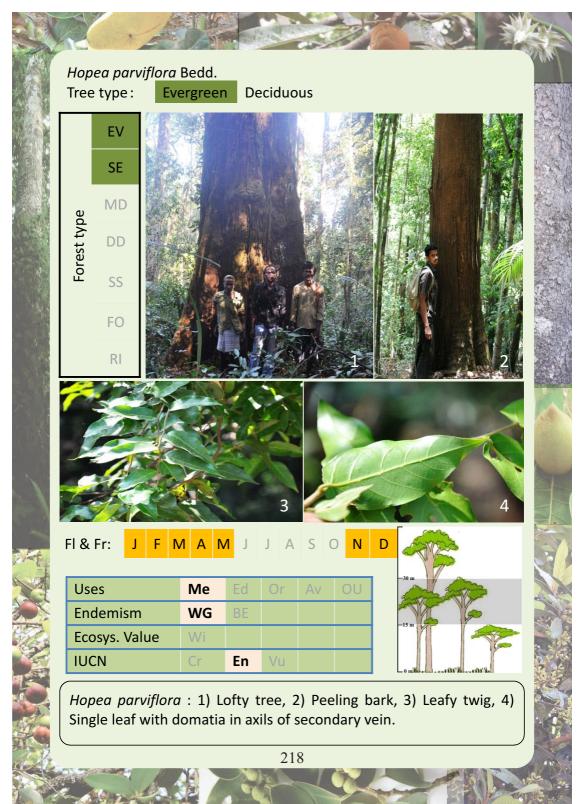
Kannada name: Tapasi, Raahu beejada mara.

Field Identification: Bark rough and flaky with brownish lenticels. When blazed, immediate outer green layer, followed with inner yellow wood. Bark and crushed leaves strong smelling.

Botanical description: Medium sized, deciduous tree. Branches leafless when in flower. Leaves up to 12 x 7 cm, elliptic-ovate, base rounded, acute to acuminate at apex; petioles to 2.5 cm long. Flowers greenish-yellow, in axillary short condensed racemes. Calyx often 4-partite. Stamens 4-8; anthers pubescent. Ovary stipitate, compressed, pubescent. Fruit a dry samara with membranous reticulately veined wing.

Habitat: Occasional in moist to dry deciduous forest.

Uses: Wood used for building purposes. Bark used for treating rheumatism, skin diseases and many other ailments in native medicine. Hanuman Langur feed on tender fruits.



HOPEA PARVIFLORA Bedd.

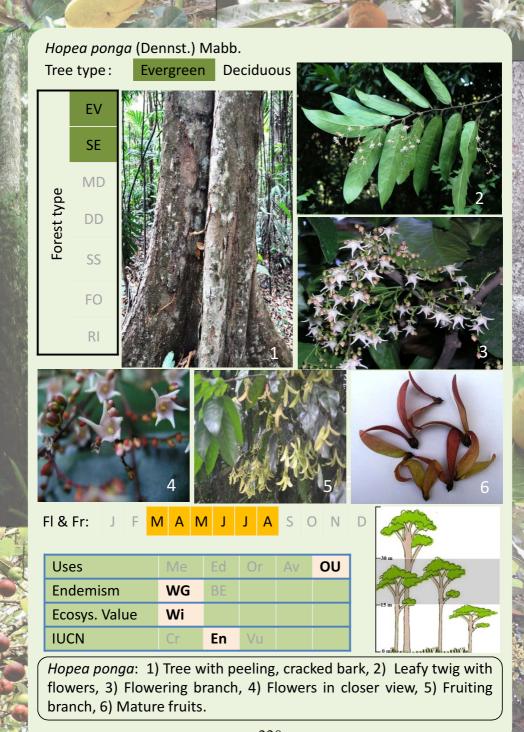
Family: Dipterocarpaceae Kannada name: Kiralbhogi

Field Identification: Large, straight trees with cylindrical boles; bark peeling from top or below. Leaves smaller than *Hopea ponga*, with distinct domatia in leaf nerve axils. Bark rusty brown, mottled with white.

Botanical description: Leaves alternate, 5-11 x 2.5-5 cm, ovate-lanceolate, base acute or rounded; lateral nerves with domatia in their axils on the under surface. Flowers many, in tomentose panicles, shortly pedicellate, small, fragrant, creamy yellow. Wings of fruits up to $5.5 \, \text{cm}$ long with $2 \, \text{straw}$ coloured wings.

Habitat: Dense evergreen and riparian forests, more in southern Uttara Kannada.

Uses: Durable hard timber used for construction, boats and various woodworks. Bark is good for tanning.



HOPEA PONGA (Dennst.) Mabb.

Family: Dipterocarpaceae

Synonym: *Hopea wightiana* Wall. *ex* Wight Arn.

Kannada name: Haiga

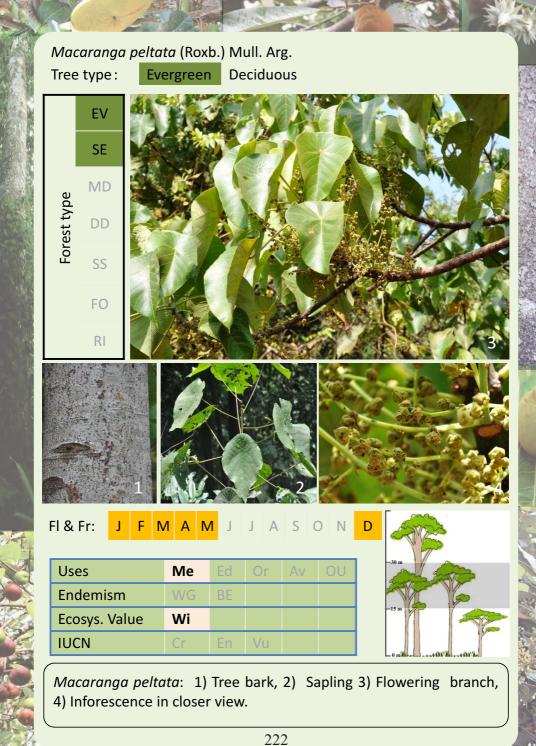
Field Identification: Bark dark, exfoliating, branchlets and petioles usually rufous tomentose. Usually with spherical, echinate, axillary or extra axillary galls. Wood fibrous when blazed.

Botanical description: Leaves larger, alternate, 12-15 x 3-5 cm, oblong or ovate-oblong, base truncate, obtuse or acute at apex. Petiole swollen, tomentose. Flowers pink in glabrous racemose panicles. Calyx glabrous, ovate. Petals c. 6 mm long, ciliate along margins. Stamens 15, dilated at base, alternate filaments with 2 anthers; anthers with long filiform appendages. Fruits c. 1cm long, ovoid, apiculate; wings 2, crimson

Habitat: Evergreen to semi-evergreen forest and also along streams.

Uses: Many insects and stingless bees collect resins from tree. Other bugs and ants also feed on tree sap and galls. Hanuman Langur and Lion Tailed Macaques feed on tender leaves. Wood for various works.

Distribution	in I	Uttara	Kannada
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MACARANGA PELTATA (Roxb.) Mull. Arg.

Family: Euphorbiaceae

Kannada name: Chandkal, Uppaligana-mara

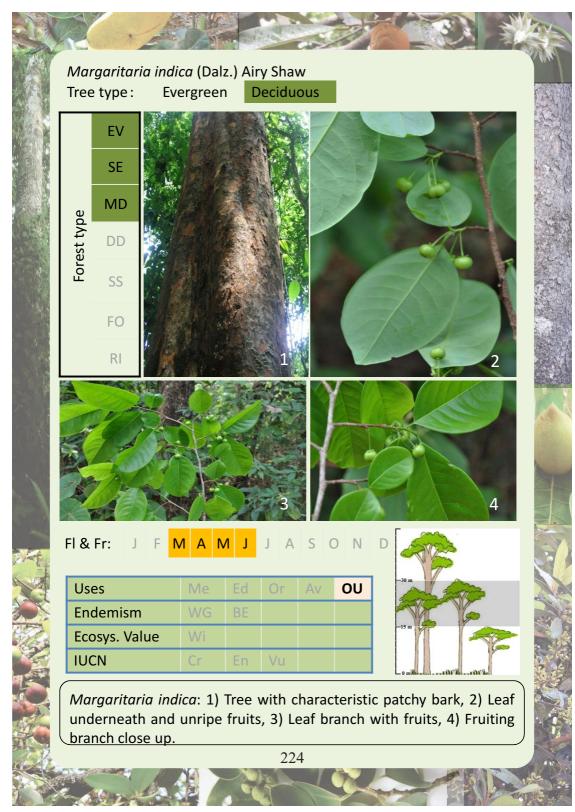
Field Identification: Fast-growing, soft-wooded trees, early colonisers trees in openings; gummy red exudation. Large orbicular, peltate leaves, red-glandular beneath.

Botanical description: Leaves alternate, to 24 x 22 cm, peltate, orbicular, palmately veined, acute to acuminate at apex, entire or minutely serrate, brown pubescent when young; petioles up to 16 cm long. Inflorescence paniculate, axillary. Flowers dioecious. Calyx in male 3-lobed. Petals 0. Stamens 2-5. Ovary globose, cells 1-ovuled. Capsule 6-8 mm across, globose, glandular-hairy.

Habitat: Clearances and edges in humid forests; in gardens.

Uses: Many wild animals feed on foliage.

Distribution	in Uttara	Kannada
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MARGARITARIA INDICA (Dalz.) Airy Shaw

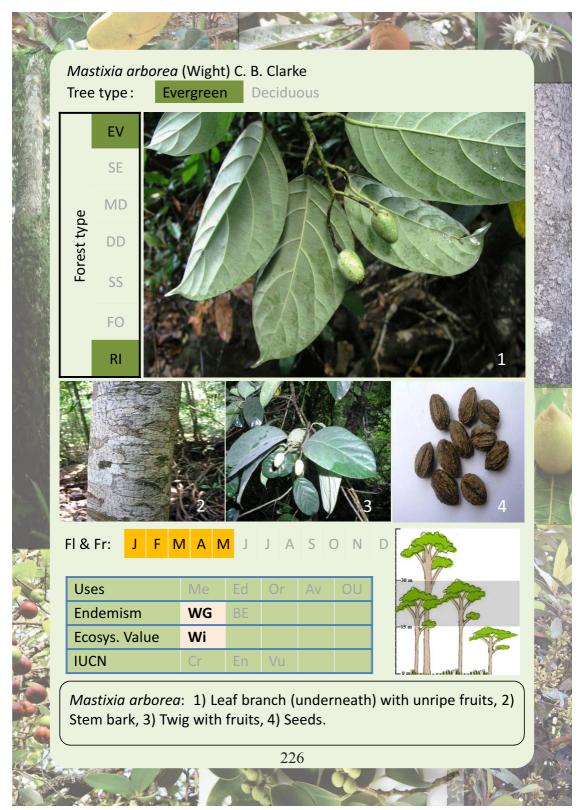
Family: Phyllanthaceae

Field Identification: Bark scaly, exfoliating in plates with brown patches. Branches angled with white lenticular markings. Leaves glaucous beneath.

Botanical description: Leaves alternate, distichous, up to 15 x 7.5 cm, elliptic or ovate, acute or acuminate at apex, acute at base, membranous, glabrous, glaucous beneath. Male flowers in fascicles, axillary. Sepals 4, the outer larger. Petals 0. Stamens 4; filaments free. Ovary 3-celled. Fruit a globose capsule on pendulous long stalk, 2-seeded.

Habitat: Semi-evergreen forests mostly riparian.

Distribution in Uttara R	kannada
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MASTIXIA ARBOREA (Wight) C. B. Clarke

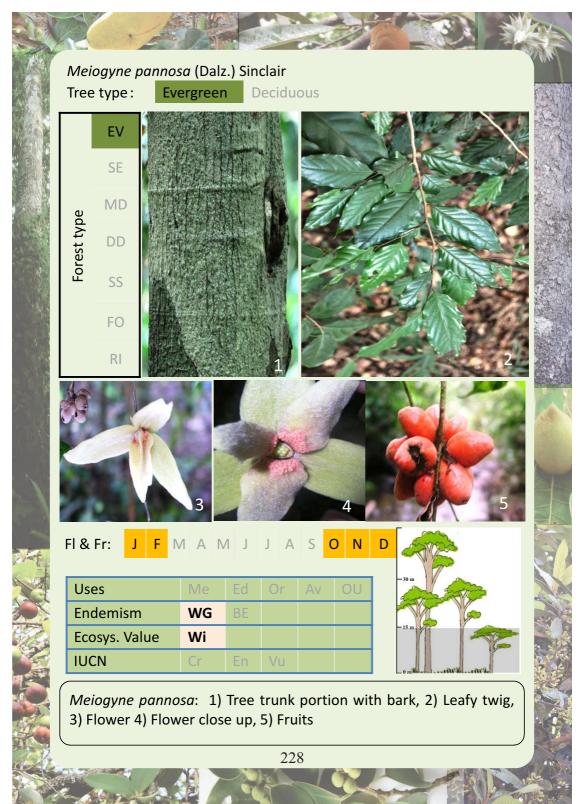
Family: Nyssaceae

Kannada name: Gulla, Kumbalamara

Field Identification: Bark greyish brown, smooth surface with lenticels, wood soft, yellow, exudes a dammar like resin on injuring.

Botanical description: Medium sized trees. Leaves alternate, 6-15 x 3-7.5 cm, elliptic or elliptic-oblong, entire or margins serrate towards apex only, coriaceous, green and glabrous above, sparsely glandular dotted beneath. Flowers green, many in pubescent panicles. Calyx c. 3 mm long. Petals 5, ovate. Fruit a drupe, ovoid or ellipsoid 3 x 2 cm, crowned by the scar of the calyx-lobes.

Habitat: Evergreen forests along streams and swampy forests.



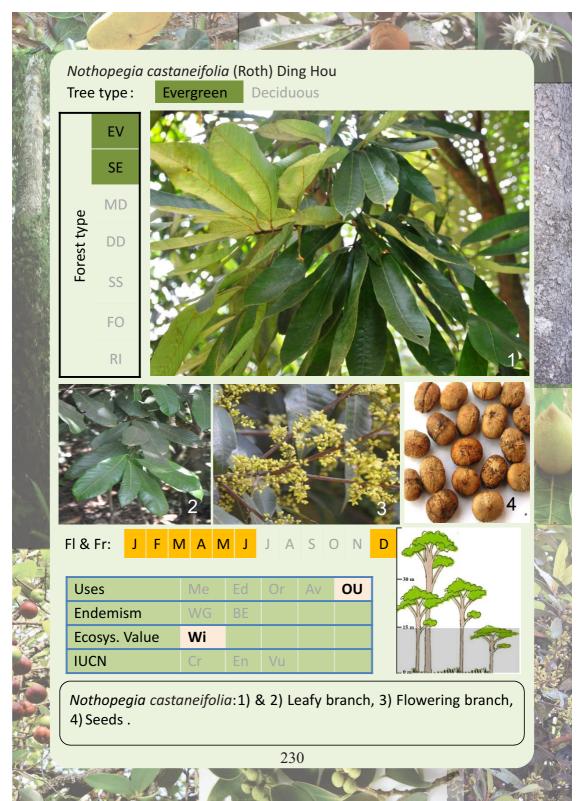
MEIOGYNE PANNOSA (Dalz.) Sinclair

Family: Annonaceae

Field Identification: Small trees with knotted greenish-black or grey bark, smooth but mottled with white; branches long, slender, drooping, young parts pubescent.

Botanical description: Leaves alternate, up to 14 x 5.5 cm, ovate-lanceolate, apex acuminate, membranous, glabrous, shining above, lateral nerves impressed above, distinct below, pubescent on young parts. Flowers 3-4 cm across, solitary, yellowish, subsessile; axillary or extra axillary, often on old wood. Sepals ovate, dark pubescent. Petals clawed, lanceolate, tomentose. Berries 5-7, crowded, c. 1.2 cm long, velvety pubescent, sessile.

Habitat: Common understorey tree in dense evergreen forest.



NOTHOPEGIA CASTANEIFOLIA (Roth) Ding Hou

Family: Anacardiaceae

Synonym: Nothopegia racemosa (Dalzell) Ramamoorthy;

Nothopegia colebrookiana sensu Hook

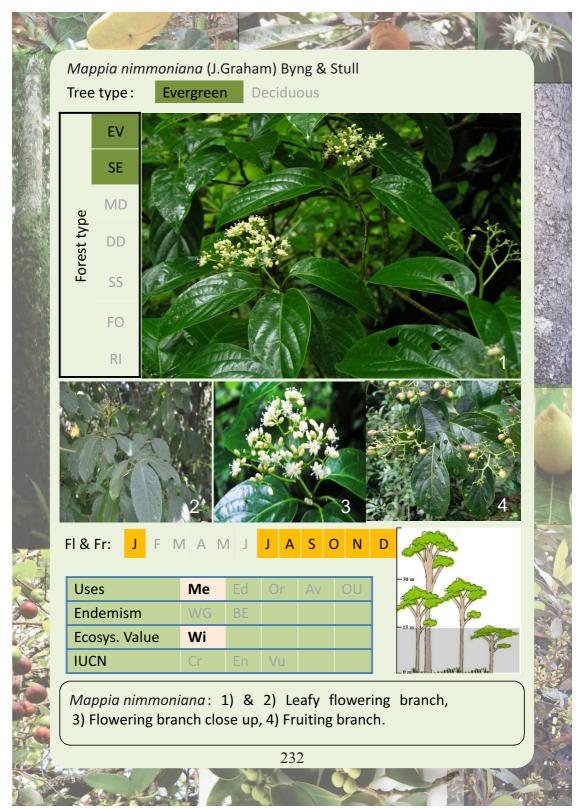
Kannada name: Ambatti

Field Identification: Bark smooth, black, blotched with grey; inner wood red, hard. Petioles slightly twisted.

Botanical description: Small trees. Leaves 8-20 x 2.5-8 cm, mostly alternate, oblong-lanceolate, alternate, sometime opposite, acuminate at apex, glabrous, decurrent into petiole, glabrous and shining above, paler and glaucous beneath. Flowers yellowish, 2-3 mm across, in short axillary racemes. Male flowers small Female flowers with 4 petals. Stamens 4. Drupe pinkish red, c.4 mm across, depressed.

Habitat: Common in evergreen to semi-evergreen forest. **Uses**: Many wild animals such as Indian Giant Squirrel feed on fleshy drupe.

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MAPPIA NIMMONIANA (J.Graham) Byng & Stull

Family: Icacinaceae

Synonym: Nothapodytes nimmoniana (J. Graham) Mabb;

Nothapodytes foetida (Wight) Sleumer

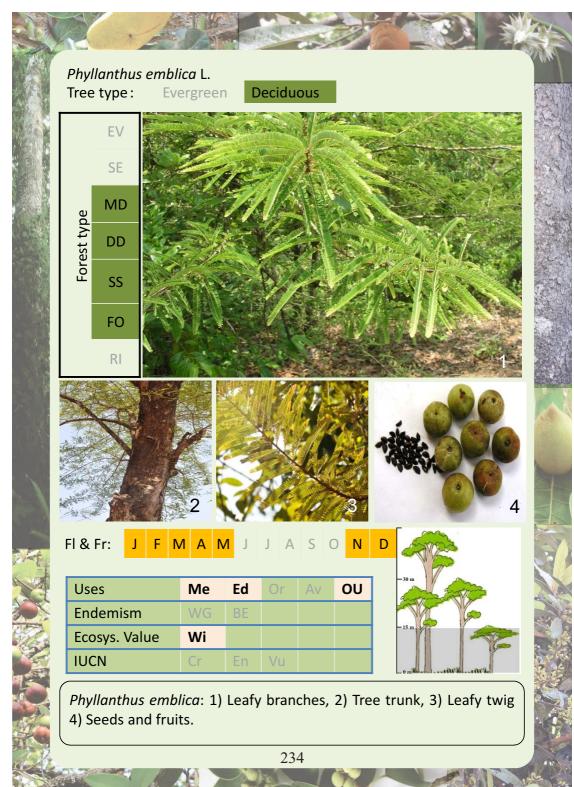
Kannada name: Helgodsa, Durvasanemara, Hetari

Field Identification: Bark prominently lenticellate. Leaves crowded toward the ends of the branches. Leaves emit a foetid smell when crushed and have domatia present in the axils of leaves.

Botanical description: Leaves alternate, 9-30 x 4.5-14 cm, ovate-oblong or elliptic-oblong, base pubescent, rounded or acute and asymmetrical, apex acuminate. Flowers creamy yellow, foul smelling, in terminal 5-10 cm long panicles. Calyx 5-toothed. Stamens 5; filaments dilated. Ovary silky tomentose. Drupes 0.9-1.5 cm long, ellipsoid or obovoid, purple when ripe.

Habitat: Outskirts of evergreen to semi-evergreen forest. **Uses**: Highly valued medicinal plant with anti-cancerous properties.

Distribution in Uttara Kannada



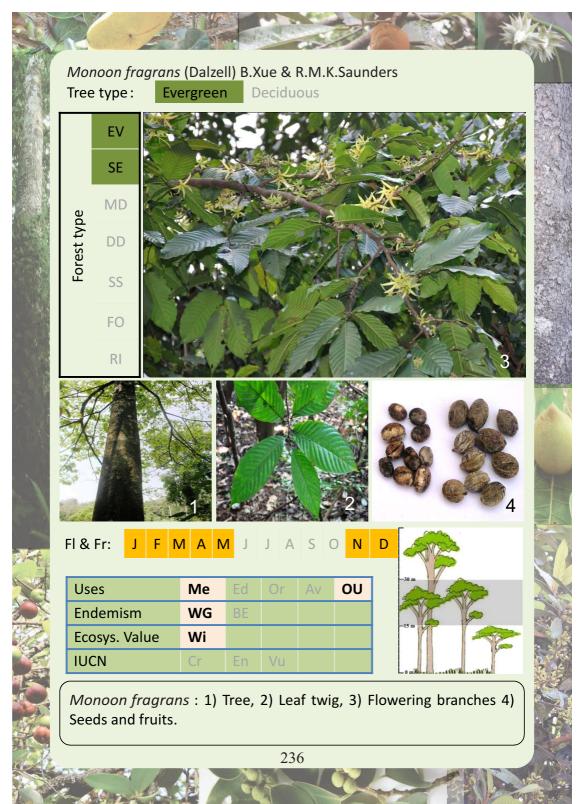
PHYLLANTHUS EMBLICA L.

Family: Phyllanthaceae **Kannada name**: Nelli mara

Field Identification: Bark brownish-grey, peeling off in small flakes. Leaves pinnate. Branches spreading, unarmed.

Botanical description: Leaves up to 1.3 x 0.3 cm, distichous, subsessile, oblong-elliptic, acute to mucronate at apex. Flowers greenish-yellow in axillary fascicles or branches. Male flowers numerous. Perianth segments 6, oblong. Ovary 3-locular. Capsule globose, fleshy, 6-furrowed. Seeds 3-gonous.

Habitat: Occasional in hill top savanna, scrub jungles etc. **Uses**: All parts extensively used for medicinal purpose. Fruits edible. Gaur, Chital, Hanuman Langur etc. feed on fruits.



MONOON FRAGRANS (Dalzell)

B.Xue & R.M.K.Saunders

Family: Annonaceae

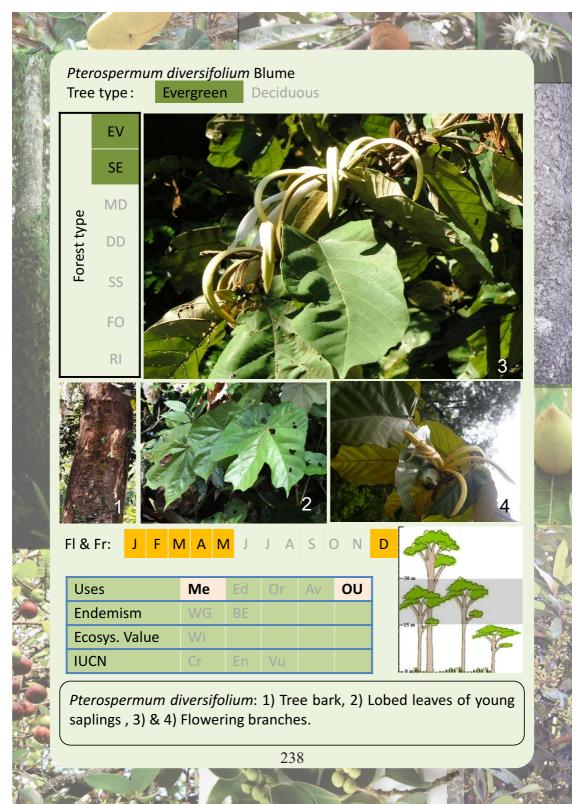
Synonym: *Polyalthia fragrans* (Dalzell) Bedd. **Kannada name**: Naarsampige, Gourimara

Field Identification: Tree buttressed with straight bole sometimes fluted; inner wood yellow, fibrous. Leaves aromatic when crushed.

Botanical description: Young shoots rusty tomentose. Leaves 23 x 11 cm, elliptic-lanceolate, sometime more broader, pellucidly dotted when young, base rounded, apex acute to shortly acuminate, glabrous and shining above. Petioles up to 1.5 cm long. Flowers yellowish-green, fragrant. Sepals almost orbicular. Petals subequal, 1.5-2.5 cm long, linear-lanceolate. Fruiting peduncle thick woody; berries ovoid, up to 3.5 cm long, purple when ripe.

Habitat: Common in evergreen to semi-evergreen forest.

Distribution in Uttara Kannada



PTEROSPERMUM DIVERSIFOLIUM Blume

Family: Malvaceae

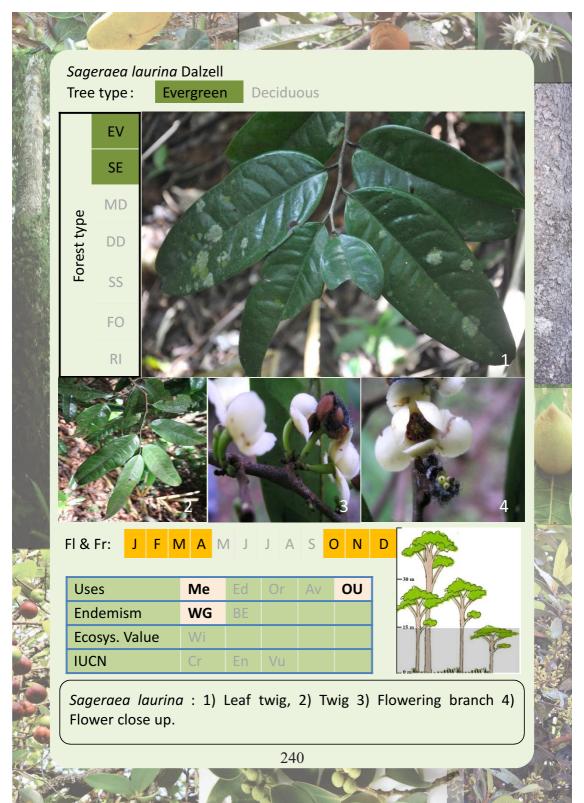
Kannada name: Muchukunda mara

Field Identification: Bark brownish-grey, with light coloured patches and knots. Blaze red. Saplings have highly lobed palmate leaves.

Botanical description: Branches minutely rusty-pubescent. Leaves 20 x 6 cm, elliptic-obovate, base cordate or truncate, glabrous above, apex acuminate, greytomentose beneath, palmately 7-8 lobed in saplings; nerves and veins impressed above, strong on underside; clothed with ferruginous pubescence. Petioles up to 1.8 cm long. Flowers axillary, 1-2 together, large, fragrant, bracteoles entire or bifid. Sepals 13 cm long, linear oblong, minutely rusty pubescent on outside. Petals white, linear-oblong. Capsules up to 15 cm long, oblong, 5-angled, woody, beaked. Seeds winged at one end.

Habitat: Frequent in evergreen to semi-evergreen forest. **Uses:** Fruits and flowers used in ayurvedic and folk medicine.

Distribution in Ottara Namiaus	Distribution	in	Uttara	Kannad	a
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SAGERAEA LAURINA Dalzell

Family: Annonaceae

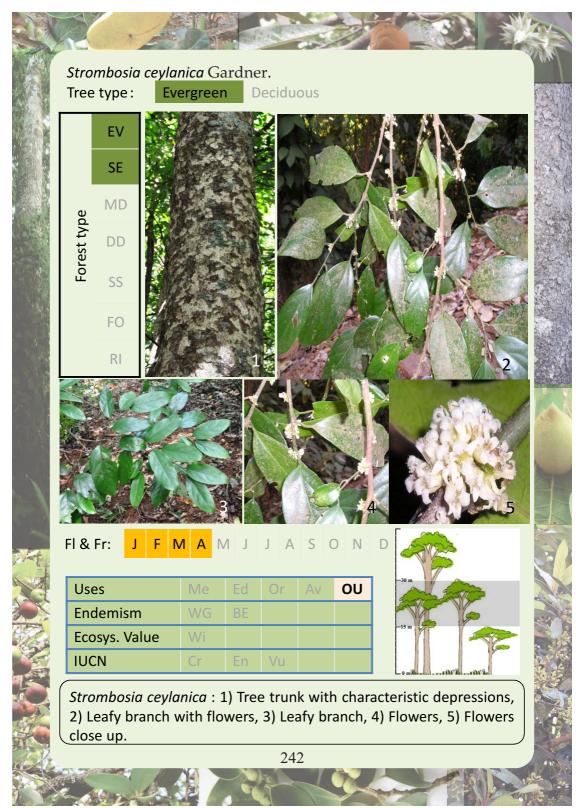
Synonym: Bocagea dalzelli Hook. **Kannada name**: Bilhaiga, Chandani

Field Identification: Dark scaly bark, with hard red inner wood. Leaves *Hopea ponga* like but more shining above and thicker. Midrib and lateral nerves impressed above.

Botanical description: Petiole to 8 mm long, transversely rugose; leaf blade oblong-lanceolate, obtusely acute or acuminate at apex, rounded or acute at base, to 18 x 6 cm, shining above, dull below, glabrous, coriaceous. Flowers in clusters of 2-10, on short tubercles of older branchlets; bracts many; pedicel to 1 cm long. Sepals 3, orbicular. Petals ovate acute, the exterior orbicular, concave; the interior a little shorter, glabrous, ciliate. Stamens 12-18. Ovaries 3-5, oblong-hairy; style short, lateral, glabrous; stigma small. Fruitlets globose, subsessile, to 2 cm across.

Habitat: Evergreen to semi-evergreen forest in more wetter areas.

Uses: Used medicinally and timber used for construction purpose.



STROMBOSIA CEYLANICA Gardner.

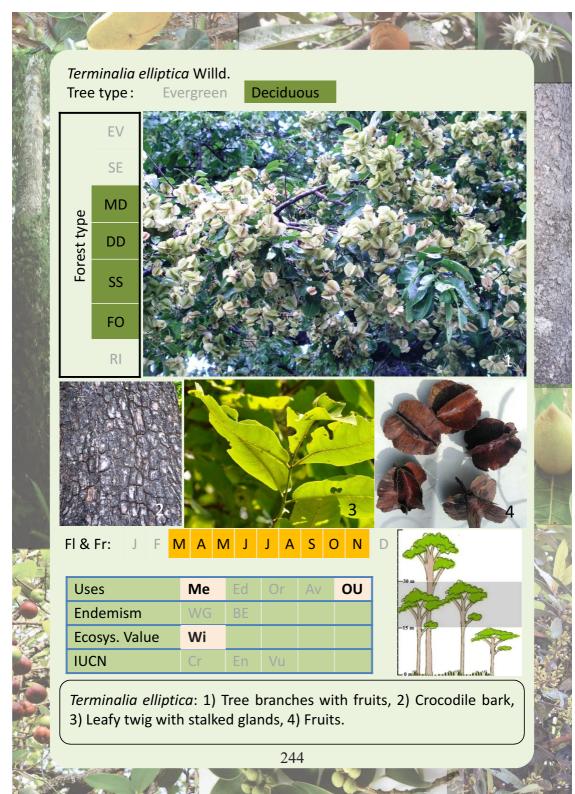
Family: Olacaceae

Field Identification: Bark greyish with characteristic shallow, light colored depressions and reddish blaze. Shining leaves with 4-6 pairs of secondary nerves.

Botanical description: Large evergreen canopy trees. Leaves alternate, 6-12 x 3-5 cm, oblong-lanceolate, rounded at the tip or shortly acuminate, pellucid dotted, glabrous; petiole up to 1.8 cm long. Flowers c. 3 mm across, whitish-yellow, sub-sessile, in axillary cymes. Calyx subrobicular. Petals longer than calyx, linear-oblong, glabrous outside. Ovary inferior, 5-locular. Drupes c.1 cm across, pyriform, deep purple.

Habitat: Evergreen to semi-evergreen forest.

Distribution	in	Uttara	Kannada



TERMINALIA ELLIPTICA Willd.

Family: Combretaceae

Synonym: T. alata Roth; T. crenulata Roth; T. tomentosa

(Roxb. ex DC.) Wight & Arn.

Kannada name: Karimatti, Hunalu

Field Identification: Bark dark grey with rectangular fissures (Crocodile bark); often with ashy coating. Leaves with 1-2 stalked glands slightly above the base of midrib.

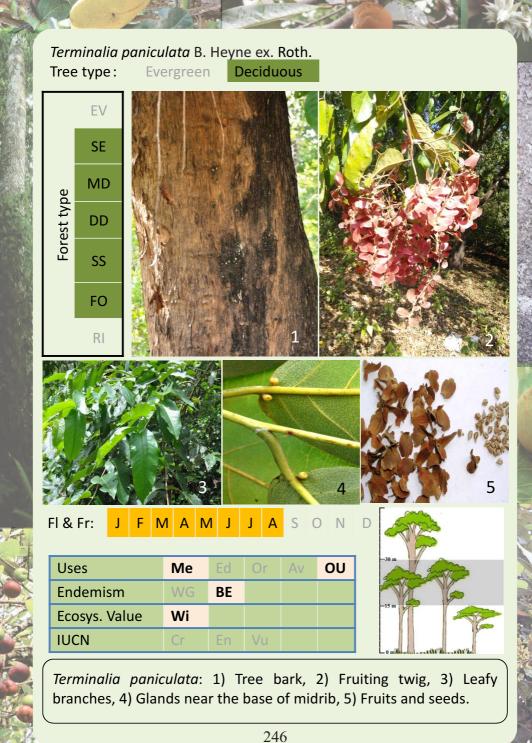
Botanical description: Leaves subopposite or alternate, up to 17 x 6 cm, elliptic or obovate-oblong, obtuse or acute at apex, narrowed at base; glands stalked. Flowers yellowish-brown or greenish-yellow, in axillary and terminal panicles. Calyx hairy outside. Drupes 3-5 cm long, with normally 5 papery, brown wings.

Habitat: Common in moist to dry deciduous forest. Hanuman Langur feeds on unripe fruits.

Uses: Wood used for building purposes. Langurs feed on leaf and fruit and Chital on flowers and fruits.

Distribution	in U	ttara	Kanna	da

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TERMINALIA PANICULATA B. Heyne ex. Roth.

Family: Combretaceae

Kannada name: Bili matti, Kindal

Field Identification: Trees with brown bark with shallow vertical groves. Leaves with 2 glands at the base of mid rib beneath.

Botanical description: Leaves alternate or subopposite, up to 20 x 10 cm, elliptic or elliptic-oblong, acute or acuminate at apex, base rounded or cordate with 1-2 glands at or near the base of the midrib. Flowers sessile, greenish-white in slender spikes forming compound panicles. Calyx cup shaped. Drupes brick-red coloured, with 3 unequal wings, 1 long and 2 short.

Habitat: Common in moist to dry deciduous forest. **Uses**: Young leaves eaten by Hanuman Langur, Gaur and

other wild animals. Wood used in agricultural implements.

Distribution in Uttara Kannada



VATERIA INDICA L.

Family: Dipterocarpaceae

Kannada name: Saal Dhoopa, Chandalika

Field Identification: Large trees with straight bole in wild. Bark smooth, grey, exudes gummy resinous sap on injury. Branches clothed with hoary stellate hairs. Petioles inflated near leaf base.

Botanical description: Leaves alternate, up to 24 x 15 cm, ovate or elliptic-oblong, apex acute, cordate or rounded at base, lateral nerves prominent beneath, marked above. Flowers to 1.9 cm across, white, fragrant, in terminal panicles. Petals 5. Stamens numerous; anthers nearly sessile. Ovary 3-celled. Fruit a capsule, 2-6 cm long, ovoid, brownish. Seeds large.

Habitat: Very rare in wild, mostly found in evergreen to semi-evergreen sacred groves and undisturbed forest. Planted as avenue tree.

Uses: The tree produces Indian dammer which is a valuable varnish. The seeds yield a vegetable butter known as 'Malabar tallow', used for manufacture of candles and soaps. Hanuman Langur and other wild animals feed on the foliage, Nilgiri Langur on leaf and fruit. Bonnet Macaque feed on fruits. Hornbills favor the tree for nesting.

Distribution in Uttara Kannada

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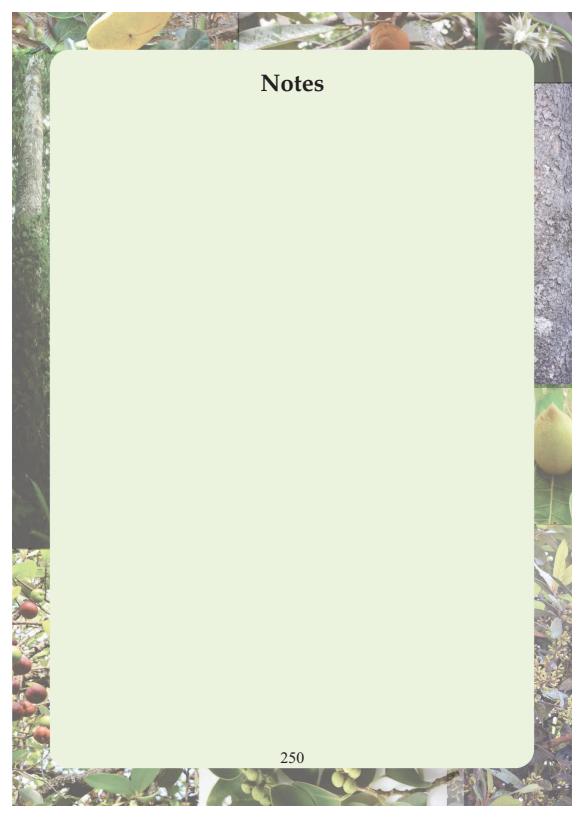
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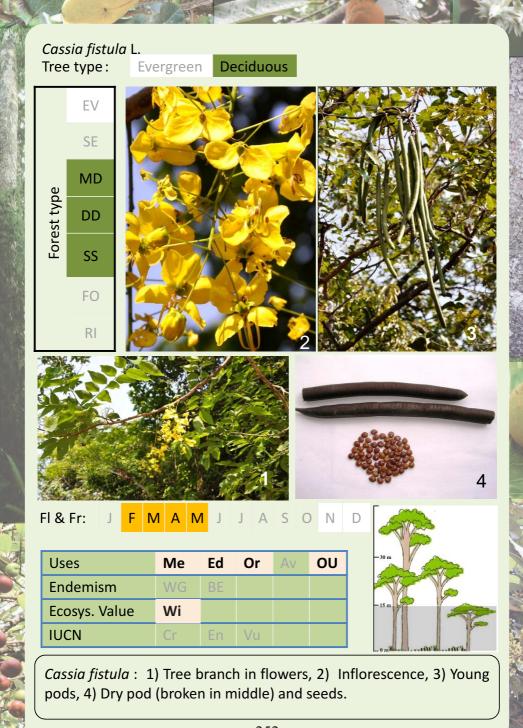
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K. Trees With Compound, Opposite And Entire Leaves





CASSIA FISTULA L.

Family: Fabaceae

Kannada name: Kakke

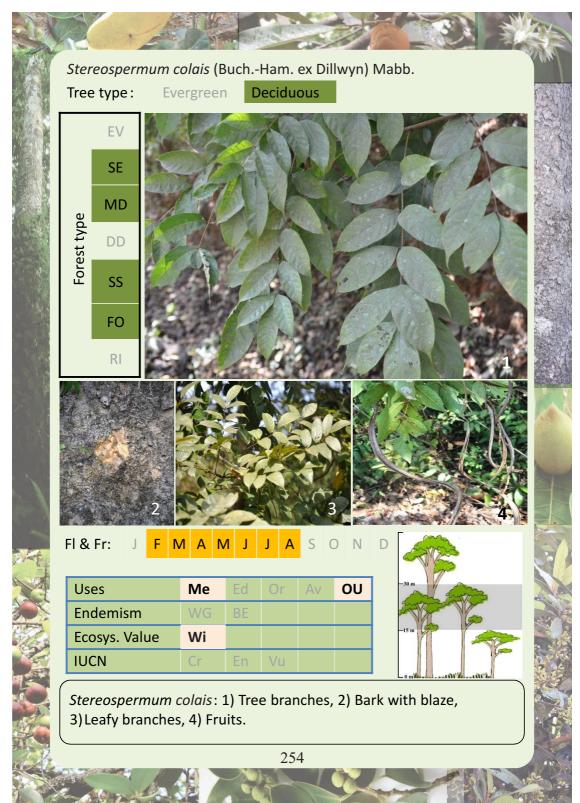
Field Identification: Deciduous tree to 25 m. Smooth in young, and rough fissured in old trees with yellowish-brown bark. Different from other *Cassia's* by pendulous large bright yellow flowers and long cylindrical pods.

Botanical description: Leaves to 45 cm long, without glands; leaflets 3-8 pairs, opposite, 5-13 x 2-9 cm, ovate, base cuneate, apex acute, bright green above and pale beneath. Flowers bright yellow in hanging 20-60 cm long racemes. Corolla 2.5-3.5 cm across, shortly clawed. Stamens 10, all fertile. Pods cylindrical, 30-60 cm long, pendulous, terete.

Habitat: Scattered trees in scrub forests of evergreen to dry deciduous forest

Uses: Used widely for medicinal purpose. Pulp inside the pod edible but a strong laxative. Popular as avenue trees. Gaur, Chital etc. feed on fruits. Sambar feeds on bark. Hanuman Langur feeds on tender leaves and fruits.

Distribution in Uttara Kannada



STEREOSPERMUM COLAIS (Buch.-Ham.

ex Dillwyn) Mabb.

Family: Bignoniaceae

Synonym: Stereospermum personatum (Haask.) Chatterjee;

Stereospermum tetragonum DC.

Kannada name: Paadarimara, Kempudale, Mukurti

Field Identification: Bark yellowish to yellowish-grey, inner wood yellowish. Trees with long curved hanging fruits. Yellow flowers with purplish veins.

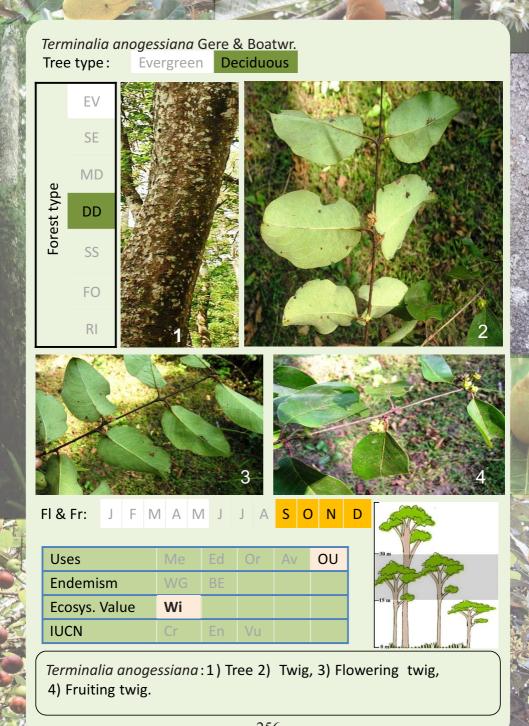
Botanical description: Large, deciduous, somewhat buttressed trees. Leaves compound, 1-pinnate, opposite or in whorls of 3, 30-45 cm long; leaflets 7-11, up to 15 x 4.5 cm, elliptic, acuminate to caudate at apex, cuneate and sometimes un-equal sided at base. Flowers fragrant, yellow, in slender drooping branches. Calyx campanulate, 5-6 mm long, 3-5 toothed. Corolla 1.8-2 cm long, pubescent outside; limb 2-lipped. Stamens 4, didynamous, with a rudimentary fifth. Fruit a capsule, up to 45 cm long, curved, linear, 4-angled, somewhat spirally twisted. Seeds many, winged.

Habitat: In canopy gaps of evergreen-semievergreen forests and in moist deciduous forest.

Uses: Reputed in folk medicine; roots for diabetes having glucose reducing power. Hanuman Langur feed on unripe fruits.

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TERMINALIA ANOGESSIANA Gere & Boatwr.

Family: Combretaceae

Synonym: *Anogeissus latifolia* (Roxb. ex. dc.) Wall. ex. guill.

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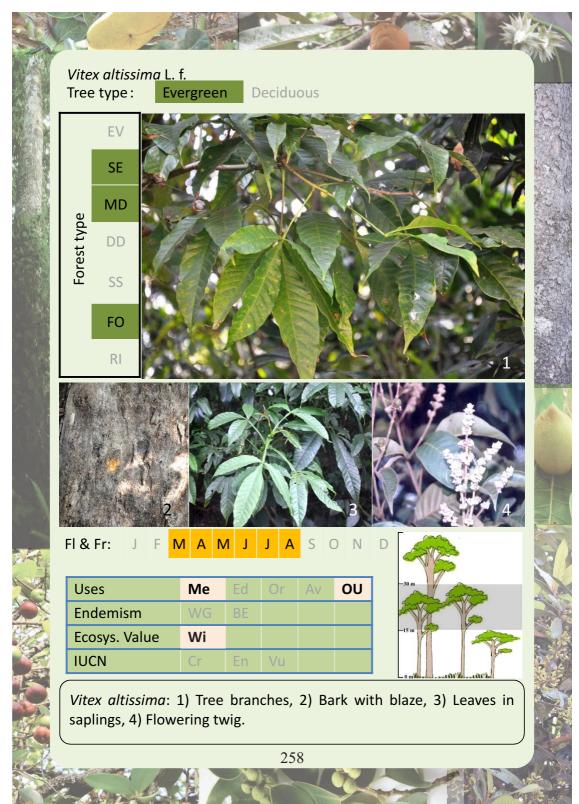
Kannada name: Dindiga

Field Identification: Medium trees with fluted stem towards base. Bark exfoliating in thin flakes leaving shallow, greenish to yellow, mottled surface. Leaves reddish when young, and turning red before shedding.

Botanical description: Leaves opposite to sub-opposite, 3-8.5 x 2.5-6 cm, elliptic-oblong, base rounded, pale dull glaucous green, apex obtuse, emarginate or shortly cuspidate. Flowers sessile in globose, axillary heads, greenish-yellow. Sepal tube pubescent. Stamens 10, exserted. Fruits in globose heads, 4-8 mm across, orbicular, winged with a long beak, yellow or brown. Seed ovoid, solitary.

Habitat: Notable component of dry deciduous forests. **Uses:** White gum from the stem used for making sweets and calico printing; gum has medicinal value. Wood strong and tough. Wood and leaves rich in tannin. Langurs feed on leaves and Chital on flowers.

Distribution in Uttara Kannada



VITEX ALTISSIMA L. f.

Family: Lamiaceae

Kannada name: Myrole, Bharanagi

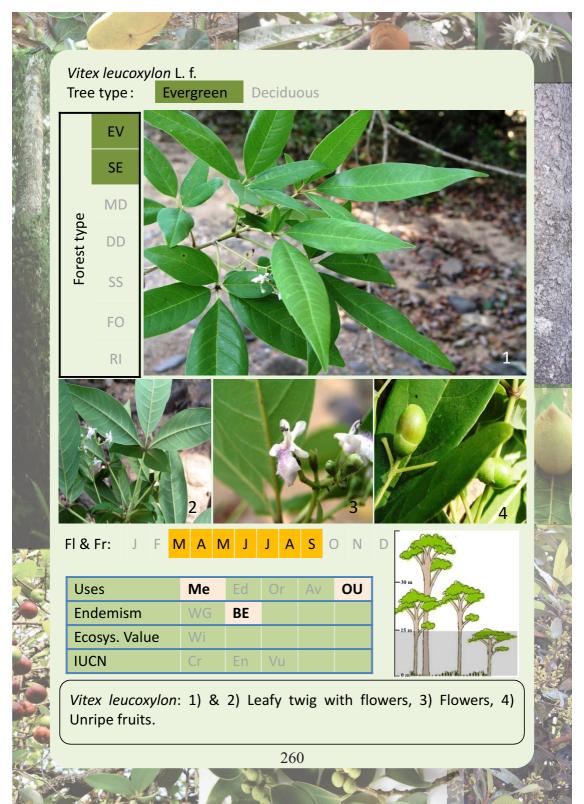
Field Identification: Large trees with yellowish to pale brown bark, inner wood yellow, hard. Leaves 3-foliate, with terminal leaflet largest; petioles often angular and winged. (Differs from *Vepris bilocularis* which does not have winged petiole, leaves petioled and lateral nerves parallel, differs from *Crateva religiosa* which is riverine, leaves alternate and stems not quadrangular).

Botanical description: Branchlets quadrangular, lenticillate, minutely hairy. Leaves opposite, up to 15 x 4 cm, digitately 3-5 foliate, mostly 3-foliate; leaflets sessile, acuminate at apex, acute at base, glabrous above, pubescent beneath, venation pellucid; petioles up to 7 cm long, often winged and auricled at base. Flowers in terminal panicles, sessile or shortly peduncled. Calyx cupular, Corolla c. 6 mm long, bluish-white. Drupe globose, c. 0.6 cm wide, purple when ripe.

Habitat: Forest openings and moist deciduous forest. **Uses**: Much used as timber for building and furniture. The wood gives yellow dye. Great Pied Hornbill has much dependence on fruits.

Distribution	in l	Uttara	Kannada
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VITEX LEUCOXYLON L. f.

Family: Lamiaceae

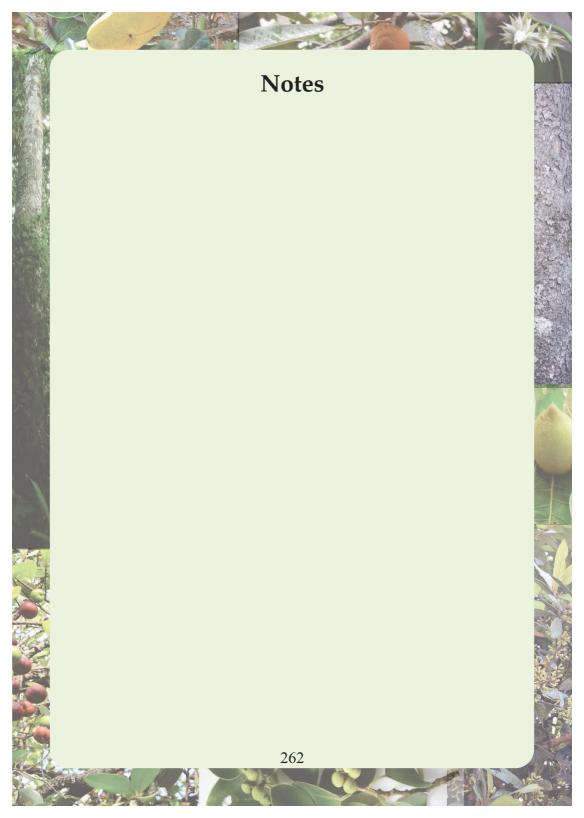
Kannada name: Holle Lakki

Field Identification: Riverine trees mostly digitately 5-foliolate, opposite leaves; basal pair of leaflets much smaller than the others; petiole joints often purplish.

Botanical description: Young parts more or less pubescent. Leaves opposite, 3-5 foliolate; leaflets up to 10 x 4 cm, long petiolate, elliptic or lanceolate, often unequal sided. Flowers fragrant, in axillary long stalked corymbose cymes. Calyx cupular. Corolla white with purplish hairs; upper lip divided into 2 rounded lobes; lower lip 3-lobed, hairy in the centre with crisped margin. Drupe ellipsoid, succulent, dark purple, up to 2 cm long.

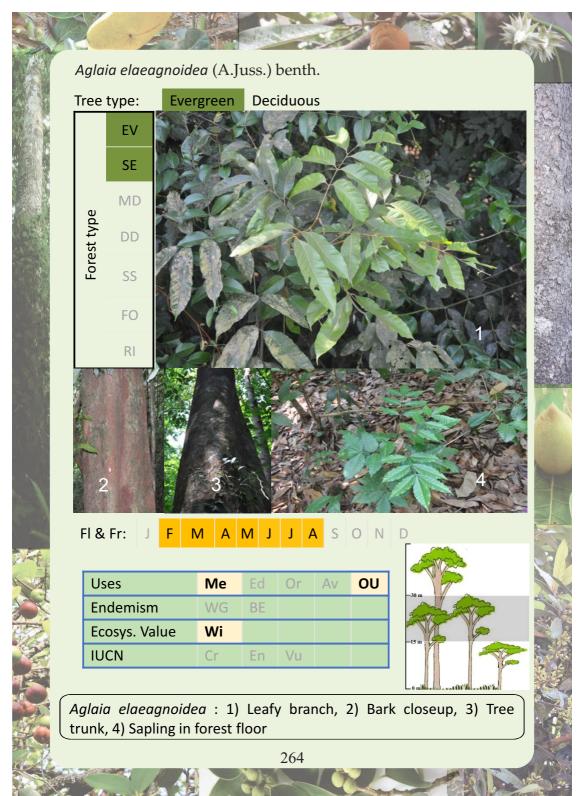
Habitat: Frequent along streams.

Distribution	ın U	ittara	Kannada



L. Trees With Compound, Alternate And Entire Leaves





AGLAIA ELAEAGNOIDEA (A.Juss.) Benth.

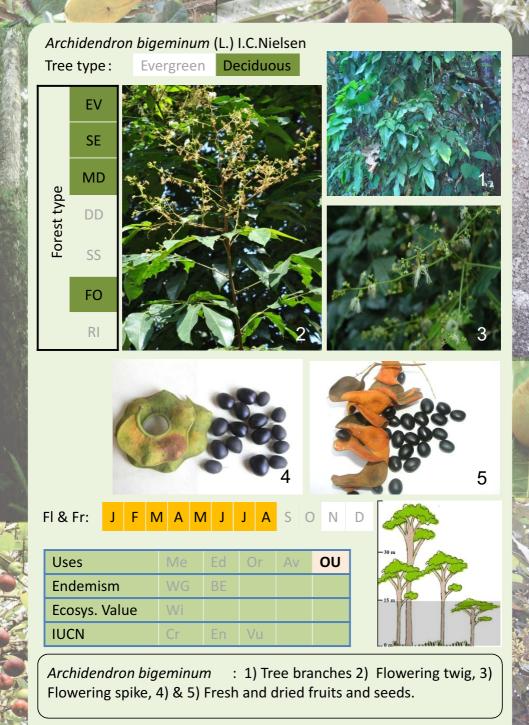
Family: Meliaceae

Synonym: *Aglaia roxburghiana* (Wight & Arn.) Miq.

Field identification: Inner bark red with light fragrance

Botanical description: Trees with young parts covered with brown lepidote scales. Leaves imparipinnate, up to 25 cm long; leaflets 3-7, opposite, elliptic to oblanceolate, up to 17 \times 6 cm. Flowers polygamous, globose, in panicles, yellow. Calyx cup-shaped, 5-lobed, ciliate along margins. Petals 5, elliptic-oblong. Stamens 5, inserted in the middle of the subglobose staminal tube. Fruit a subglobose or pyriform berry, ca 2 cm across, velvety-lepidote-tomentose.

Habitat: Evergreen to semi-evergreen forest. **Uses**: Fruits used for medicinal purpose



ARCHIDENDRON BIGEMINUM (L.) I.C. Nielsen

Family: Fabaceae

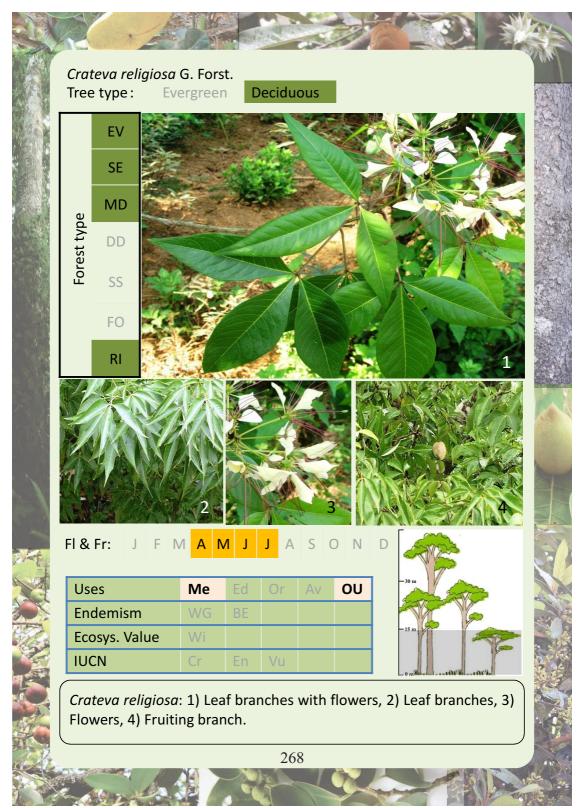
Synonym: *Pithecellobium monadelphum* (Roxb.) Kosterm.

Kannada name: Kadu konde mara

Field Identification: Tree bark reddish-brown, prominently lenticellate. Gland on leaf petiole and one below each pair of pinnae.

Botanical description: Small trees. Bark reddish brown, lenticellate. Leaves bipinnate; Petioles 3-4 cm long, with a gland above the middle; pinnae 1-2 pairs, 10 cm long, usually with glands between leaflet pairs. Leaflets 7.5-15 x 3.5 cm, elliptic-ovate, apex emarginate, pubescent beneath when young. Flowers pale yellow, few flowered heads in peduncled clusters on long panicles. Calyx densely brownsilky. in . Pods c. 8 x 1.5 cm, circinate.

Habitat: Frequent along margins of evergreen to semievergreen forest.



CRATEVA RELIGIOSA G. Forst.

Family: Capparaceae (=Capparidaceae) **Synonym:** Crateva magna (Lour.) DC.

Field Identification: Small sized riverine trees with alternate, tri-foliate leaves and long petioles. (Also see *Vitex altissima*).

Botanical description: Branches lenticellate. Leaves alternate, digitately trifoliolate, petioles to 12 cm long; leaflets 8-25 x 3-6 cm, elliptic-lanceolate, acute to acuminate, attenuate at base, pale beneath, the lateral leaflets oblique at base. Inflorescence a terminal corymb. Flowers 3-4 cm across, greenish-white or yellow. Sepals 4, petaloid. Petals long clawed. Stamens numerous; inserted at the base of the gynophore; filaments lilac or purple. Fruit a globose or ovoid, woody berry with hard rind, covered with white specks.

Habitat: Occasionally found along open streams.

Uses: The bitter leaves are used in medicine; bark used as antidote for snake bite. Host plant for many butterflies.



DIMOCARPUS LONGAN Lour.

Family: Sapindaceae

Synonym: Nephelium longana cambess.

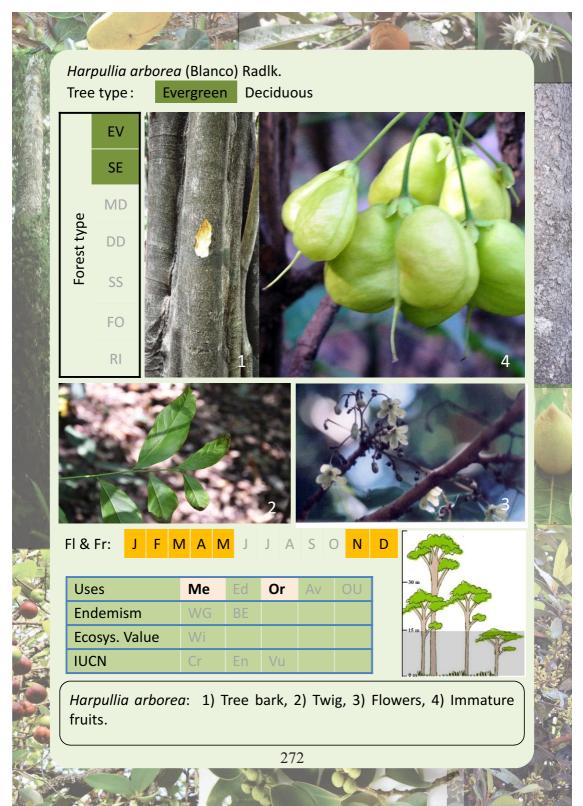
Kannada name: Kendala

Field Identification: Moderate sized evergreen trees, Bark reddish brown, rough with lenticels and flaking off in small pieces in places. Branchlets prominently white lenticillate. Young parts clothed with rufous stellate pubescence, (similar to *Aglaia* sp. But distinguished by imparipinnate leaves).

Botanical description: Leaves alternate, to 40 cm long; leaflets usually in 2-5 pairs, opposite, ovate-lanceolate, acute to shortly acuminate at apex, rounded to oblique at base, glaucous beneath, to 20 x 7cm, shining, young leaves red. Flowers small, creamy white, c.4 cm across, in terminal or axillary hairy panicles. Petals 5, linear-spathulate. Fruit globose, tubercled, red, 1.5-2 cm across.

Habitat: Common in evergreen to semi-evergreen forests. **Uses**: The aril of the seed is sweet and edible. Indian Giant Squirrel and Hanuman Langur noted as feeding on fruits. Timber for plywood and matchwood.

Distribution in Uttara Kannada



HARPULLIA ARBOREA (Blanco) Radlk.

Family: Sapindaceae

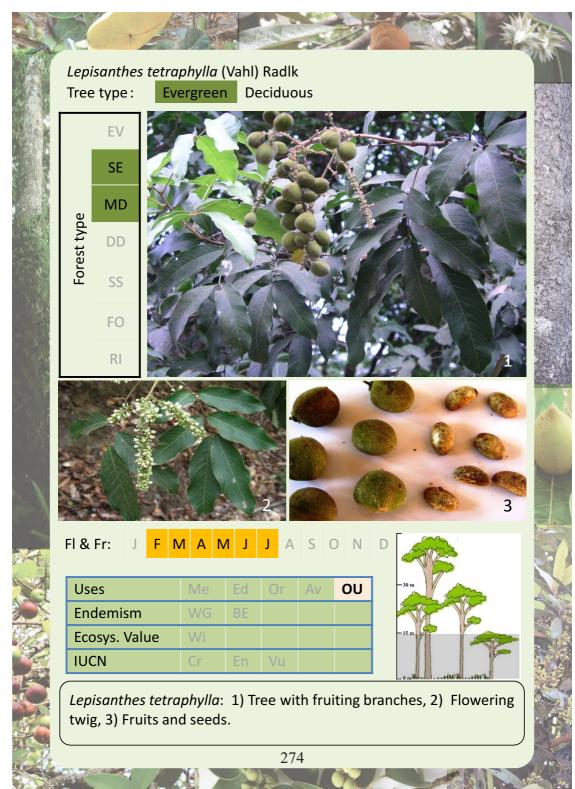
Synonym: *Harpullia imbricata* (Blume) Thwaites

Field Identification: Tree bole fluted, smooth, greyish with inner yellow wood. Leaflets oblique at base.

Botanical description: Leaves alternate, imparipinnate, up to 40 cm long; leaflets 6-12, up to 22 x 7 cm, alternate or opposite, ovate or elliptic, oblique at base, shining above, paler beneath, glabrous. Flowers yellowish in lax axillary or sub-terminal pubescent panicles. Sepals 5, ovate, tomentose. Petals twice the calyx, glabrous, obovate, clawed. Stamens 5-8. Ovary ovoid, 2-celled. Fruit an inflated, coriaceous, 2-lobed, 2-celled, 2-valved capsule, c.5 cm across, pendulous, bright orange-red when ripe.

Habitat: Evergreen to semi-evergreen forest near streams and moist areas.

Uses: Fruit and bark extract prevent leech bite; seed oil is used in rheumatism



LEPISANTHES TETRAPHYLLA (Vahl) Radlk

Family: Sapindaceae

Synonym: *L. deficiens* (Bedd.) Radlk.; *Hemigyrosa canescens*

(Pers.) Blume

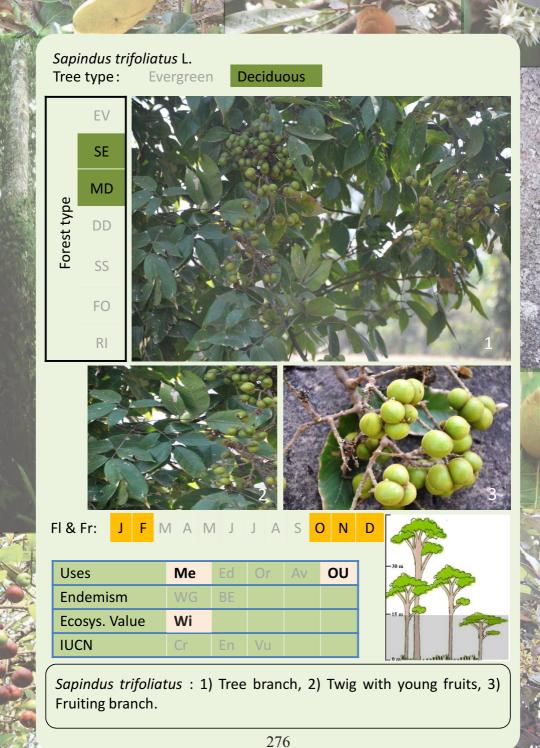
Kannada name: Mooltaga, Kurpah, Katu yette

Field Identification: Bark ash coloured; leaves paripinnate, shining ashy-green. Fruits depressed towards apex.

Botanical description: Leaves alternate, paripinnate, up to 25 cm long; leaflets 2-4 pairs, up to 20 x 6 cm, opposite to sub-opposite, oblong-lanceolate or elliptic-oblong, apex obtuse, acute or emarginate, shining ash green. Flowers white or greenish-white, 4-5 cm across, in terminal rusty panicles. Sepals unequal. Petals oblong-spathulate. Capsules 1.5-2.5 cm across, subglobose, 3-gonous, yellow-tomentose.

Habitat: Common in semi-evergreen to moist deciduous forest.

Distribution in Uttara Kannada



SAPINDUS TRIFOLIATUS L.

Family: Sapindaceae

Synonym: Sapindus laurifolius Vahl.

Kannada name: Antvaala mara, Norrekai

Field Identification: Bark grey shining with rough scaling. Wood hard, yellow. Leaves alternate, abruptly pinnate, terminal leaflet longest and acuminate. Fruit velvety when young.

Botanical description: Leaves alternate, abruptly pinnate; leaflets opposite, 2-3 pairs, 5-20 x 3-8 cm, lanceolate or elliptic-oblong, base acute or rounded, apex acute or acuminate, margins entire. Flowers 4-5 mm across, Greenish-white or white. Sepals 5, round-ovate, fulvous pubescent outside. Ovary 3-lobed. Fruit up to 3.5 cm across, consisting of 2-3 fleshy combined drupes, wrinkled when ripe.

Habitat: Occasional in semi-evergreen to moist deciduous forest, mostly cultivated.

Uses: Fruits used as substitute for soap. Fruit extracts is good leech repellent. Fruit powder is applied externally for skin and scalp problems. Fruit used for making shampoos and soaps. Sapindus honey is considered medicinal and very expensive. Chital feed on leaves; Hanuman Langur feed on fruits.

Distribution in Uttara Kannada

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SARACA ASOCA (Roxb.) Willd.

Family: Fabaceae

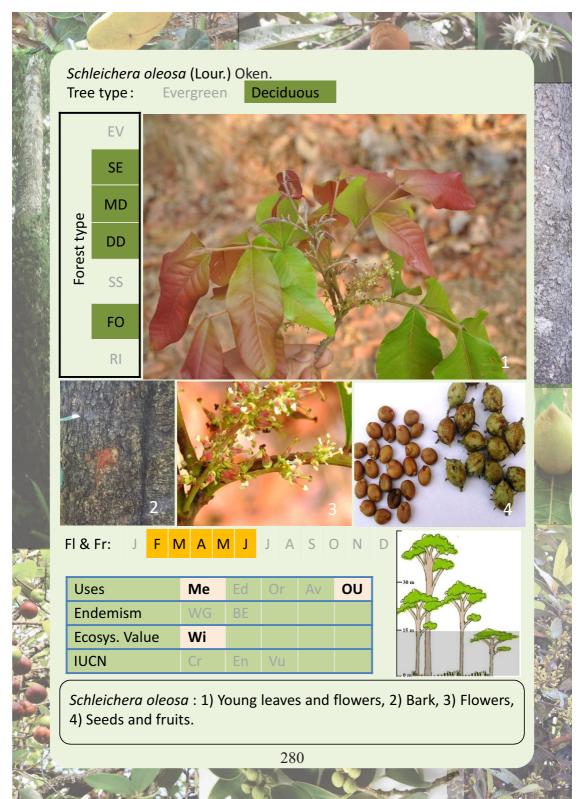
Synonym: *Saraca indica auct., non L.*

Field Identification: Riverine small trees with compound paripinnate leaves with often young flush red. Leaflets slightly oblique at base.

Botanical description: Leaves to 25 cm long, paripinnate; rachis glabrous; stipules completely united, interpetiolar; leaflets 4-6 pairs, up to 23 x 6 cm, acute to acuminate at apex. Inflorescence on old wood with compact corymbose panicles, terminal or axillary. Flowers 2.5 cm long; bracteoles embrassing calyx tube. Calyx yellow, turning to orange and finally to red; lobes 4. Petals lacking. Stamens 7-8, free. Pod up to 25 x 5 cm, oblong, compressed, woody.

Habitat: Evergreen to semi-evergreen forest along streams. **Uses**: The bark and flowers have high medicinal value.

Distribution in Uttara Kannada



SCHLEICHERA OLEOSA (Lour.) Oken.

Family: Sapindaceae Kannada name: Sagadi

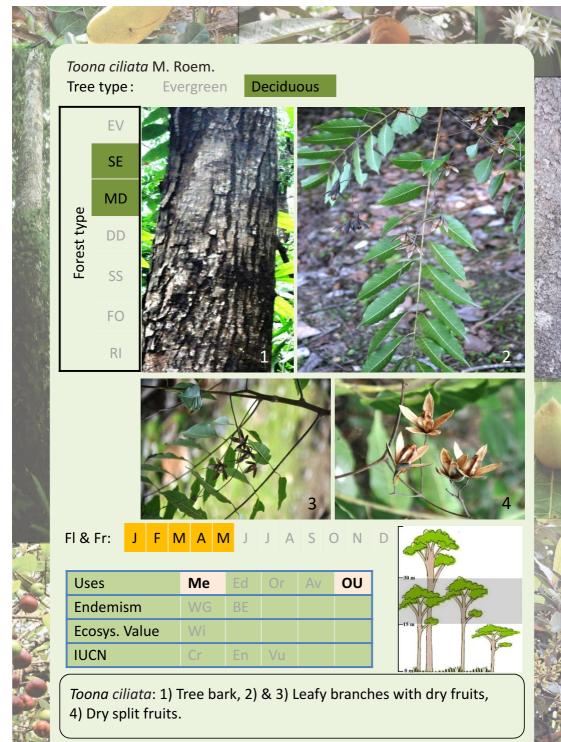
Field Identification: Trunk deeply furrowed, with exfoliating scales. Thick bark, reddish brown inside. Wood reddish, hard. Young foliage red and conspicuous.

Botanical description: Leaves alternate, paripinnate, up to 25 cm long; leaflets 2-4 pairs, up to 18 x 8 cm, sessile, opposite or sub-opposite, obtuse to acute at apex, coriaceous, base subacte or subcordate, densely brown tomentose beneath. Flowers greenish-white, 2.5-3 mm across. Petals absent. Stamens 5-8. Drupes 1.5-2 cm long. Ovoid-globose, pointed, echinate, with blunt prickles.

Habitat: In forest edges and openings of semi-evergreen forest and in moist to dry deciduous forest.

Uses: Whitish pulp of the fruit edible. Wood is used for agricultural implements. Tree host for lac insect. Monkeys and by Spotted Deer feed on fruits and leaves. Elephants feed on the leaves. Chital feed on flowers.

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TOONA CILIATA M. Roem

Family: Meliaceae

Synonym: *Toona hexandra M. Roem.*; *Cedrela toona* Roxb.

ex Rottl. & Willd.

Kannada name: Gandagarige

Field Identification: Bark dark brown to grey, vertically fissured. Leaves lanceolate, with unequal base and long acuminate apex.

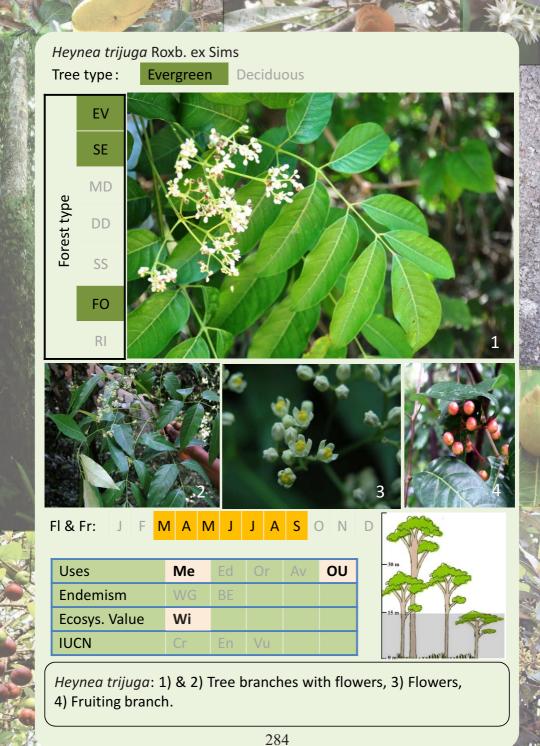
Botanical description: Leaves paripinnate, 30-60 cm long, alternate; leaflets opposite or alternate, 4-15 pairs, up to 16 x 6 cm, ovate-lanceolate to lanceolate, oblique at base, acuminate to long acuminate at apex, glabrous, margins serrate or entire. Flowers c. 8 cm across, white in terminal drooping panicles, scented. Calyx lobes orbicular-ovate, ciliate. Petals c. 5 mm long, broadly elliptic, keeled at base inside. Stamens 5, free. Ovary sessile. Fruit a 5-valved capsule, up to 2.5 cm long, with 5-winged central column.

Habitat: Occasional in out skirts of semi-evergreen forest and in moist deciduous forest.

Uses: Bark used for medicinal purpose and flowers yield a dye. Timber used in building and furniture.

Distribution in Ottara Kaminau	Distribution	in	Uttara	Kannad	la
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HEYNEA TRIJUGA Roxb. ex Sims

Family: Meliaceae

Synonym: *Trichilia connaroides* (Wight & Arn.) Bentvelzen

Kannada name: Kora

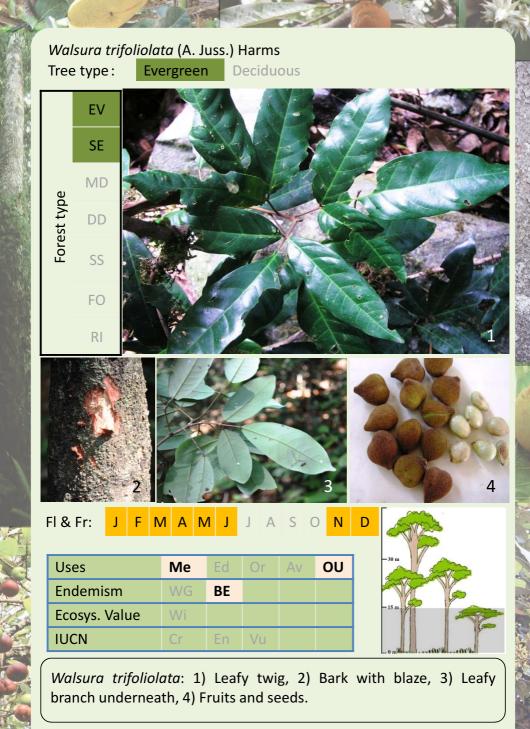
Field Identification: Trees in forest edges, with compound leaves; leaflets glaucous beneath; rachis swollen at the junction of each pair of leaflet.

Botanical description: Branches spreading. Leaves alternate, imparipinnate, up to 50 cm long; leaflets ovate to ovate-elliptic, 7-9, 5-14 x 3.5-4 cm, unequal-sided at base, glaucous beneath, acuminate at apex. Flowers white, c. 8 mm across, in long peduncled panicles. Calyx 5-lobed. Petals 5, 4-5 mm long, much longer than calyx, midrib thickened. Anthers 10. Fruit 1-2 cm across capsule, globose, reddish.

Habitat: Evergreen to semi-evergreen forest along forest edges.

Uses: Visited by large number of butterflies and other insects.

Distribution in Uttara Kannada



WALSURA TRIFOLIOLATA (A. Juss.) Harms

Family: Meliaceae

Synonym: *Walsura piscida* Roxb.

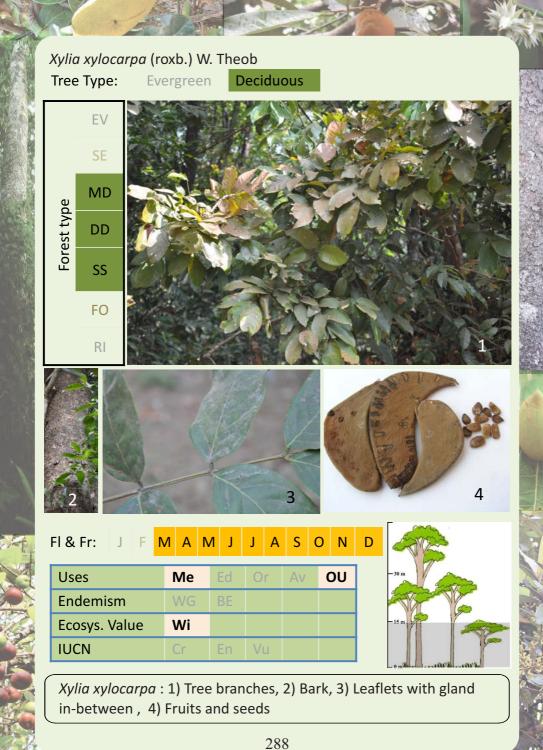
Field Identification: Bark pale brown with copious light coloured lenticels; inner bark red, slightly fibrous. Leaves trifoliolate with leaflets dark green above and glaucous beneath; petioles inflated at both ends.

Botanical description: Leaves alternate, 3-foliolate, leaflets ovate-elliptic to subovate, up to 18 x 6 cm, sub-coriaceous, shining dark green above, glaucous beneath, terminal leaflet longer, base acute. Flowers yellowish white, small, in axillary and terminal panicles. Calyx 5-lobed. Petals c.1.5-3.5 mm long. Stamens 10. Ovary 2-celled. Fruit a berry orange yellow to brown, up to 2 cm long, finely tomentose, minutely apiculate.

Habitat: Occasional in evergreen to semi-evergreen forest and along streams.

Uses: Wood oil is used for itches. Bark is used for poisoning fish.

Distribution	in Uttara	Kannada
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XYLIA XYLOCARPA (Roxb.) W. Theob

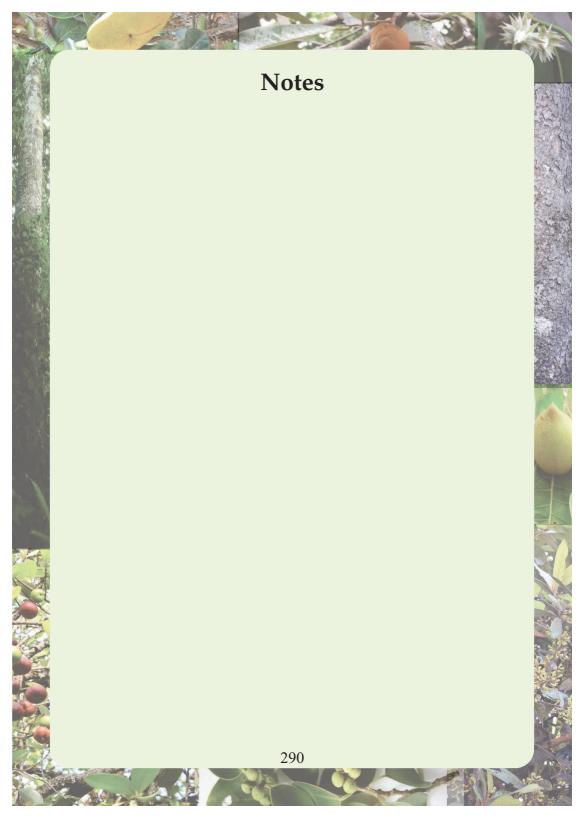
Family: Fabaceae

Kannada name: Jambe

Field Identification: Leaf with orbicular gland between the pinnae at the apex. Leaflets with a gland between each pairs.

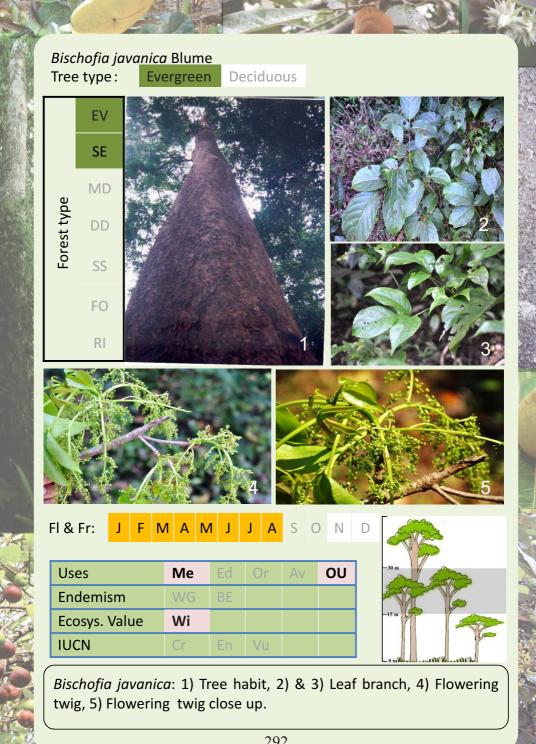
Botanical description: Bark rough with exfoliations. Leaves compound, alternate, bipinnate; petiole pulvinate, with an orbicular gland at tip; leaflets 4-18, opposite, upper larger, up to 15 x 6 cm. Flowers bisexual, sessile, dull yellow, in axillary globose heads. Petals 5. Stamens 10, free, exserted. Fruit a pod, up to 15 cm long, flat, broadly falcate, woody, compressed.

Habitat: Common in moist deciduous forest **Uses:** Larval host plant. Seeds edible. Plants of medicinal usage.



M. Trees With Compound, Alternate And Serrate Leaves





BISCHOFIA JAVANICA Blume

Family: Phyllanthaceae

Kannada name: Neeli mara, Netr-honne

Field Identification: Large, evergreen trees with dark brown bark peeling off in angular scales; sometimes reddish watery exudate on injury. A coppicer. Leaves 3-foliate, serrate.

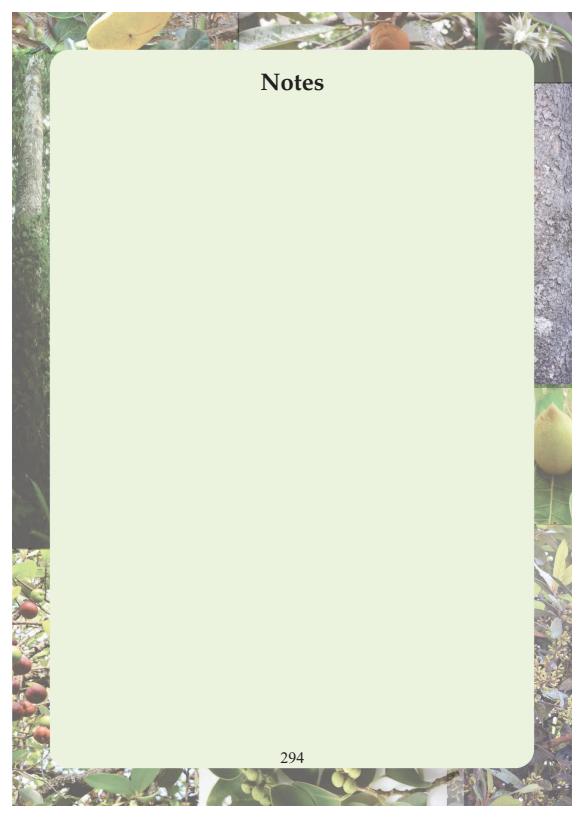
Botanical description: Leaves alternate, 3-foliate, serrate; leaflets 11-18 x 4-10 cm, broadly elliptic-ovate, base often oblique, apex acuminate; secondary nerves 6-8 pairs. Flowers light green, in axillary and lateral pedunculate, paniculate racemes. Male flowers: sepals white, 5, *c*. 1 mm long. Stamens 5. Female flowers: Sepals *c*. 2.5 mm long. Berry green, 6-8 mm across, globose, reddish-brown. Seeds brown.

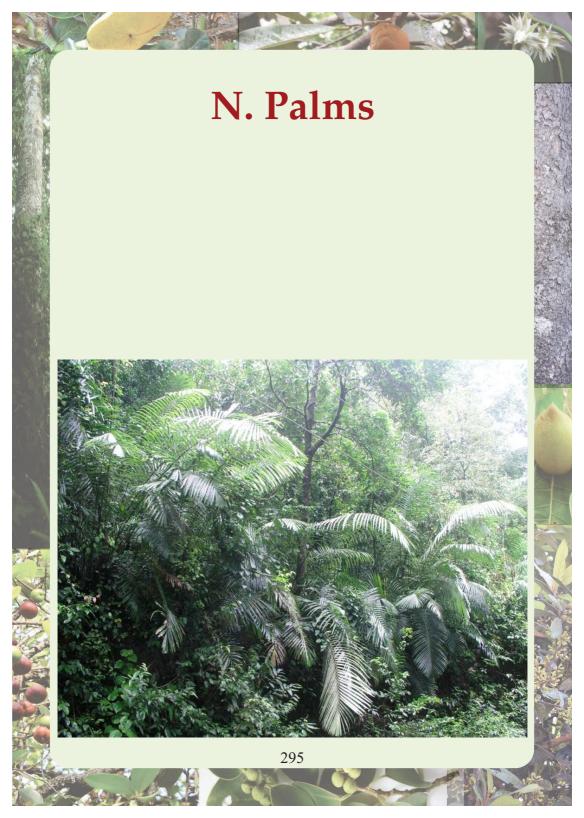
Habitat: Occasional in semi-evergreen forest; prefers moist shaded ravines and streamsides.

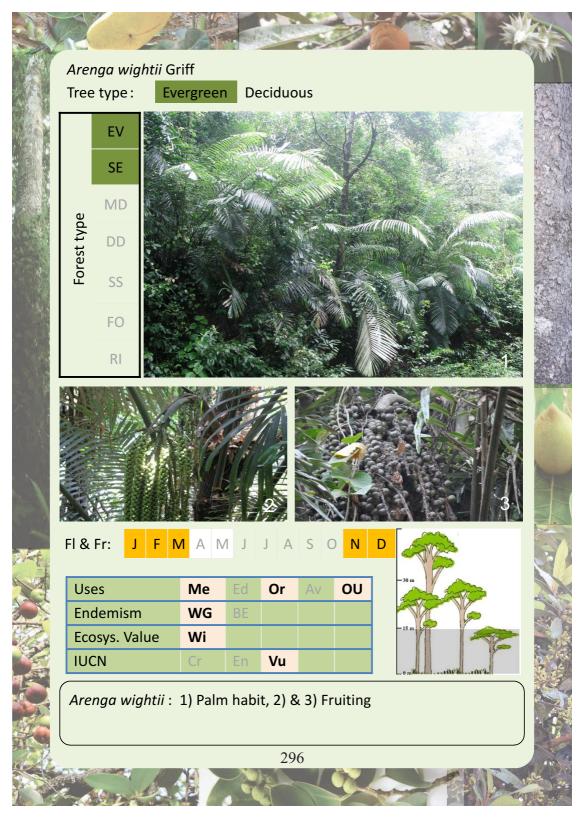
Uses: Bark and leaves have medicinal properties. Berries are eaten by many forest birds. Berries also eaten by Kerala forest tribes.

Distribution in Uttara Kannad	Distribution	in Uttar	a Kannada
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ARENGA WIGHTII Griff

Family: Arecaceae

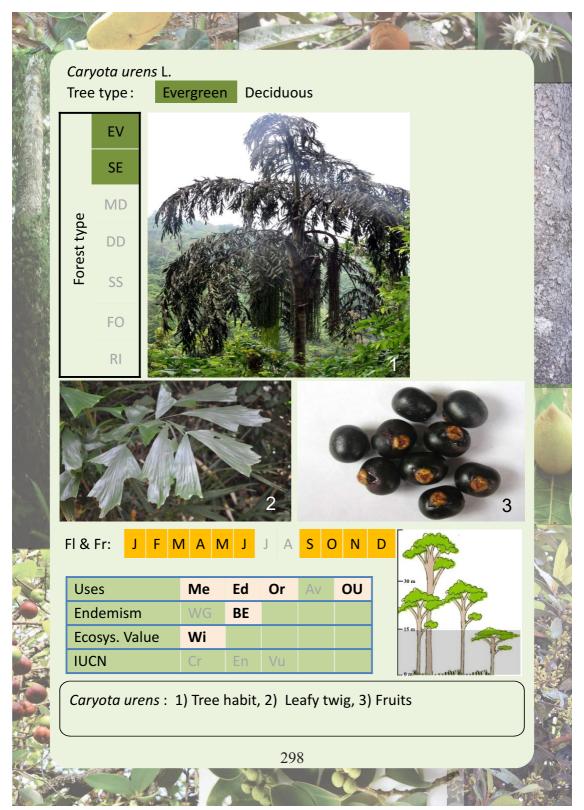
Kannada name: Dodasalu

Botanical description: A palm with short trunk and very long pinnate compound leaves. Stem covered with fibrous leaf sheaths. Leaves pinnate, 9 m long; petioles to 4 m; leaflets 90-110 x 3-5 cm, linear ensiform, white beneath, 2-auricled at base. Spadix 1 m long, pendulous branches. Male flowers strongly scented. Sepals 3, orbicular. Petals 3, thick. Stamens many. Female flower petals triangular, cuspidate. Fruits depressed globose.

Habitat: In shady areas of evergreen to semi-evergreen forest.

Uses: Yields toddy from inflorescence. Leaves used for thatching. Also source of food for many wild animals.

Distribution in Uttara Kannada



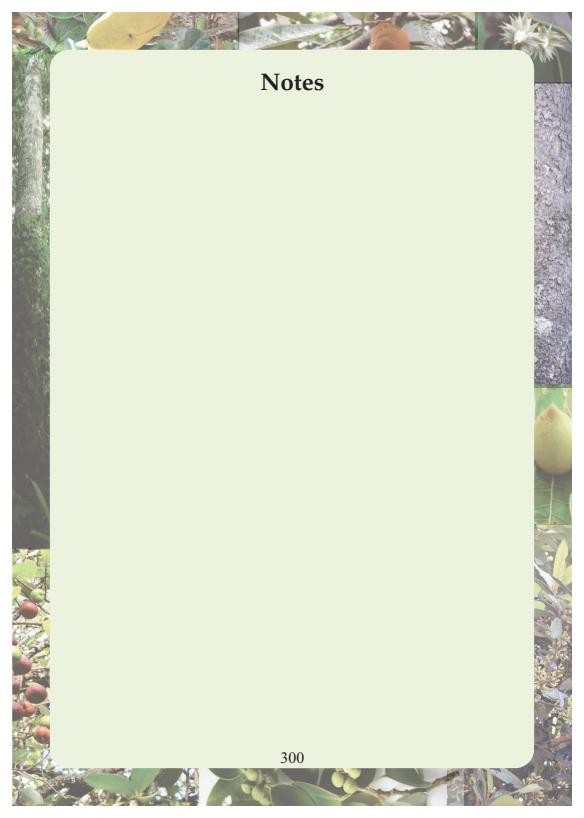
CARYOTA URENS L.

Family: Arecaceae

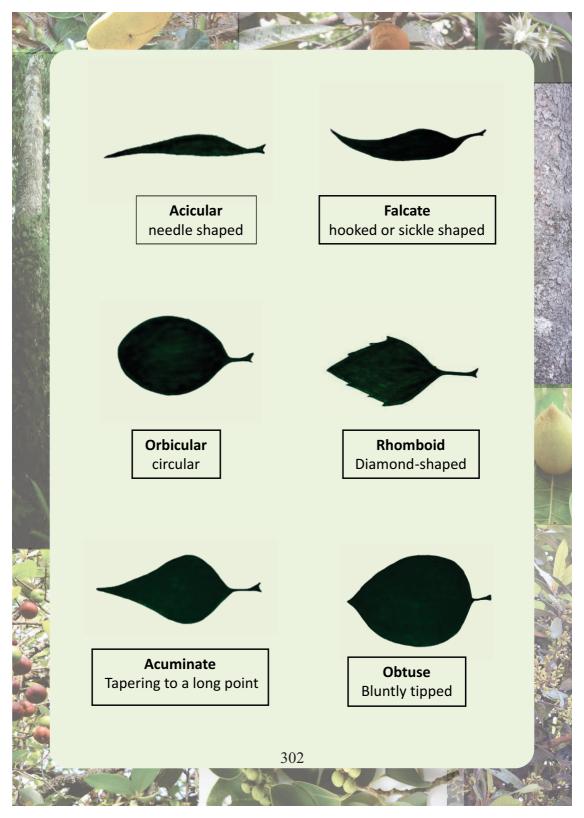
Kannada name: Baini mara,

Botanical description: A pretty palm tree. Trunk stout, annulate. Leaves pinnatisect, to $6 \times 3.6 \text{ m}$; leaflets up to 20 cm long, broadly cuneate, serrate on the apical margins. Inflorescence 3-4 m long. Spathe to 40 cm long. Flowers greenish. Male flowers 1-1.5 cm long. Sepals 3, cordate, ciliate; petals 3, larger than sepals. Staminodes 3. Female flowers longer than male flowers. Berries c. 1.8 cm across, globose.

Habitat: Occasional in evergreen to semi-evergreen forest. **Uses**: Palatable sago is obtained from the pith. Fresh toddy is obtained from peduncle. Drupes used medicinal. Food for many wild animals. Tender leaves as food by Kerala forest tribes. Wood resistant to termites and used in making agricultural implements.



GLOSSARY-ILLUSTRATIONS LEAF SHAPE 301





Ovate Egg-shaped, wide base



EllipticOval- shaped,
small or no point



HastateTriangular with basal lobes



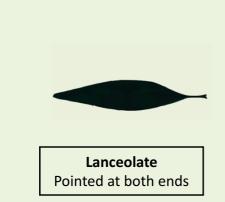
PalmateResembles a hand



Spatulate Spoon-shaped



AristateWith spine like tip





PedatePalmate, divided lateral lobes



Spear-shapedPointed, barbed base



LinearParallel margins, elongate



PeltateStem attached centrally



SubulateTapering point, awl-shaped



Cordate Heart-shaped, stem in cleft



Lobed Deeply indented margins



UnifoliateHaving single leaf



Trifoliate/ternate leaflets in threes



CuneateWedge shaped, acute base



Obcordate Heart-shaped, stem at point



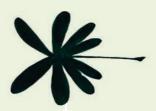


Deltoid triangular

Obovate Egg shaped, narrow at base



TruncateSquared-off apex



Digitate with finger like lobes



PinnatisectDeep, opposite lobing

LEAF ARRANGEMENT 307



RosetteLeaflets in tight circular rings

PerfoliateStem seeming to pierce leaf

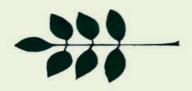
Simple Leaves

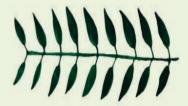




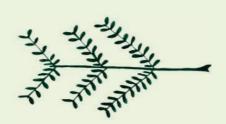
Alternate simple leaf Leaflets arranged alternately **Opposite simple leaf** Leaflets in adjacent pairs

Compound Leaves



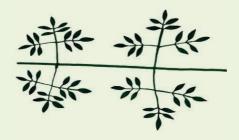


Odd Uni-Pinnate Leaflets in row, one at tip **Even Uni-pinnate** Leaflets in row, two at tip



Bipinnate

Leaflets also pinnate



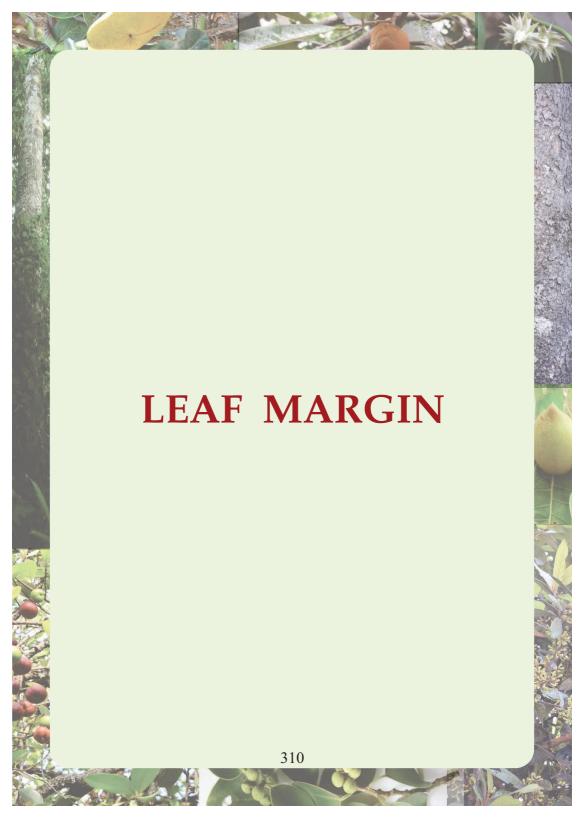
Tri pinnate

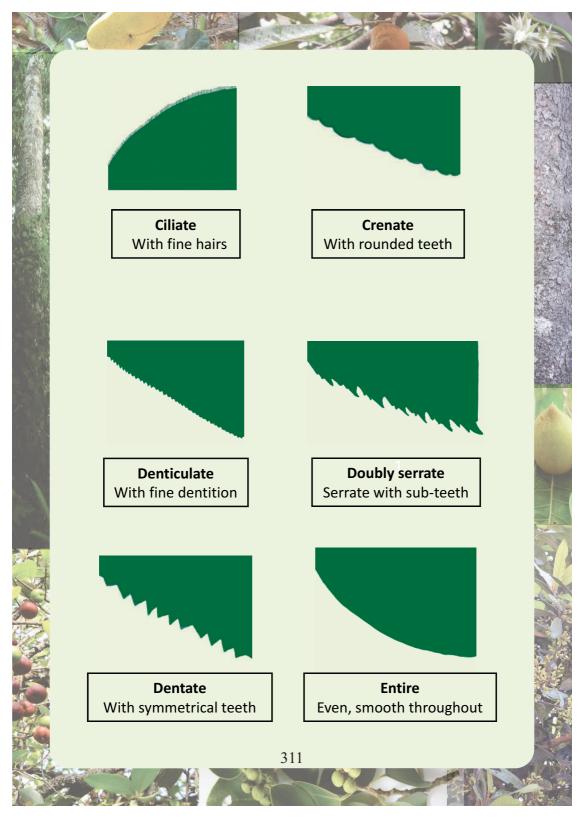
Leaflets also pinnate

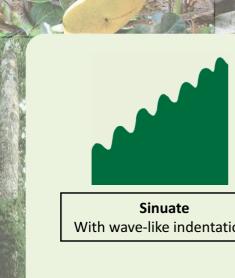


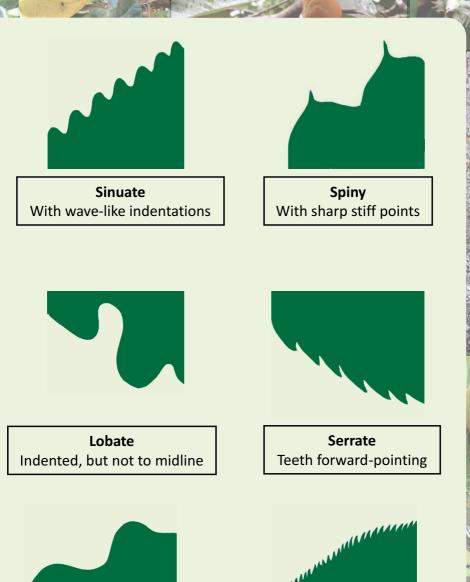
Whorled

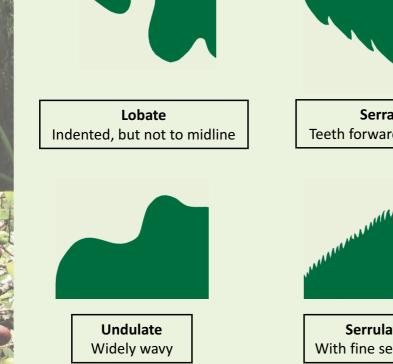
Rings of three or more leaflets

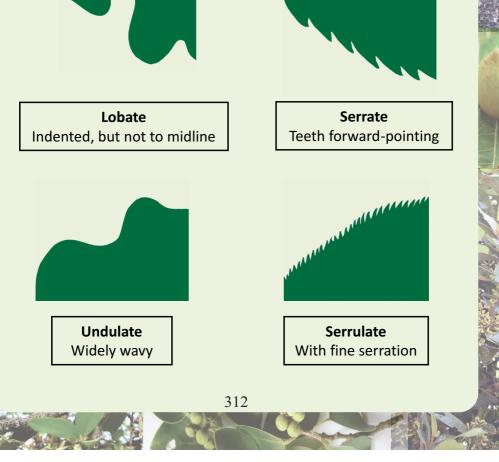


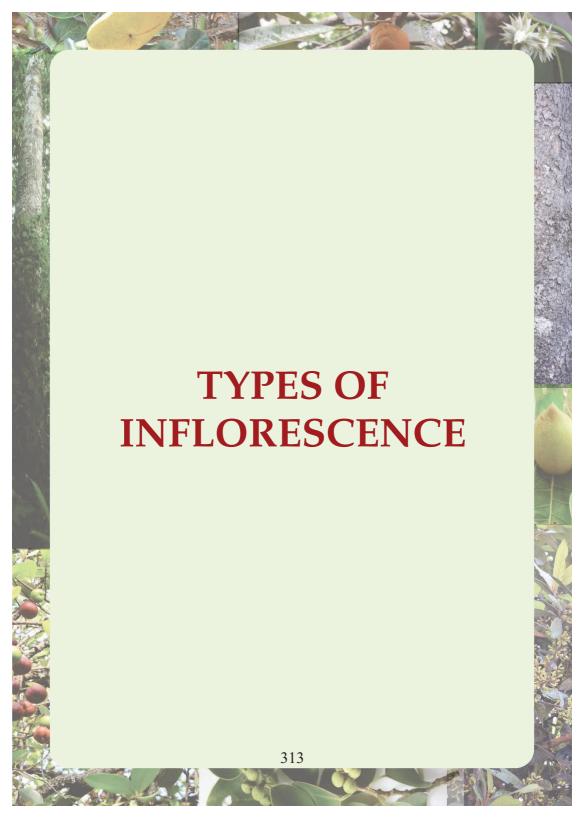


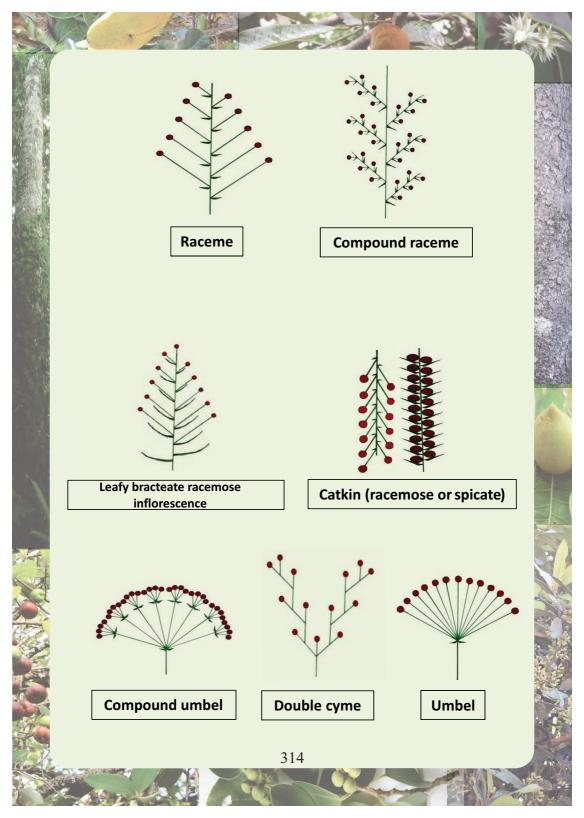


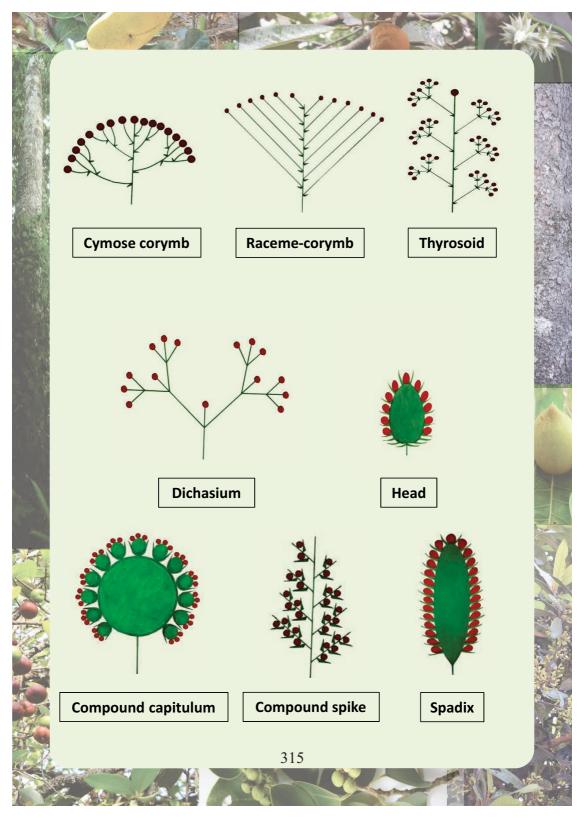












Botanical Glossary

36			J
1	Sn	Botanical term	Meaning
	1.	Amplexicaul	The base dilated and clasping the stem, usually of leaves
	2.	Annulate	With rings or ring like markings
Birth St	3.	Appressed	Lying flat for the whole length of the part or organ
	4.	Auricle	Ear like appendage
	5.	Blaze	Make a cut on the wood to reveal inner wood
	6.	Calyptrate	Cap like appendage
1	7.	Campanulate	Bellshaped
	8.	Caudate	Long narrowly tipped
	9.	Chartaceous	Papery
	10.	Ciliate	Hairy
	11.	Circinate	Spirally coiled with the tip innermost
	12.	Cordate	Heart shaped
	13.	Coriaceous	Leathery
	14.	Crenulate	Minutely scalloped
	15.	Crisped	Finely curled
	16.	Cuneate	Wedge shape
	17.	Cupular	Cupola shape
	18.	Dentate	Widely large toothed
	19	Dioecious	Male and female reproductive structures develop on different individuals
	20.	Distichous	Arranged in two opposite rows
	21.	Domatia	Hollow structure made by plant, that is inhabited by ants or mites
	22.	Emarginate	Notched at apex
N.	23.	Fimbriate	Fringed
d	24.	Flush	Young leaves and stem
1	25.	Fluted	With furrows or vertical buttress like grooved stem
	26.	Fulvous	Dull yellowish-brown or yellowish grey hairs
	27.	Fusiform	Spindle shaped, rod shaped gradually narrowing from the middle towards end
	28.	Glabrous	Without hairs
	29.	Glaucous	Light greenish-blue shade
	30.	Gregarious	Occurring in large numbers in small areas
W.			216

		A Alm	
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	31.	Imparipinnate	Pinnate leaf with an odd number of pinnae (terminated by a single leaflet)
	32.	Inflorescence	Main flowering twig
	33.	Knotted	Lump like woody mass on stems
	34.	Lacinate	Divided
	35.	Paripinnate	Even number of leaflets (terminated by even number of leaflet)
	36.	Pendulous	Hanging
	37.	Petaloid	Petal like
	38.	Pilose	Covered with soft, weak, thin and clearly separated hairs
	39.	Pinnatifid	Pinnately lobed
	40.	Pinnatisect	Pinnately divided almost to midrib but segments still confluent
	41.	Polygamous	Bisexual and unisexual flowers in same plant
	42.	Puberulous	Small hairs
	43.	Pyriform	Pear shaped
, y	44.	Revolute	Rolledinside
3.2	45.	Riparian	River and Stream side
4	46.	Serrate	Closely small toothed
	47.	Serrulate	Finely serrate
	48.	Sessile	Without stalk
	49.	Spathe	Large bract ensheathing an inflorescence
	50.	Staminodes	A sterile stamen
	51.	Stellately	Star shaped
	52.	Stipitate	Stalked
T	53.	Stones	Hard seeds
ST.	54.	Strigose	Covered with appressed, rigid, bristle like, straight hairs
	55.	Suture	Junction or seam of union
	56.	Terete	Cylindrical without grooves or ridges
	57.	Tomentose	Short hairs
1	58.	Tubercled	With a small wart-like outgrowth
	59.	Undulating	Wavy
1	60.	Urceolate	Urn shaped
	61.	Verrucose	With warts
Z.			317

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Medicinal Use

Sl No	Tree species	Kannada name	Part used	Medicinal Uses
1.	Alstonia scholaris (L.) R. Br.	ಹಾಲೆ ಮರ	Bark, Stem, Latex	Malaria, Viral Fever, skin diseases and herpes
2.	Antidesma montanum var. montanum	ಕರೆ ಸೊಪ್ಪು/ ಕಡಿವಾಳ ಸೊಪ್ಪು	Leaf	Tonic for mothers after giving birth, ulcer and lumber pain
3.	Archidendron bigeminum (L.) I.C.Nielsen	ಕಾಡು ಕೊಂಡೆಮರ	Latex, sap, leaves, bark	Latex and sap is using for wound healing
4.	Ardisia solanacea Roxb.	ಬೊಡೆ/ ಬೊದಿನಗಿಡ	Root	Relieve indigestion
5.	Arenga wightii Griff.	ಬೆಟ್ಟ ತೆಂಗು/ ಕಾಡು ಈದಲು / ಕಾಡು ತೆಂಗು /ದಡಿಸೆ /ಧೂಢ್ಸಾ	Leaves, bark	Skin diseases
6.	Artocarpus gomezianus Wall. ex Trecul ssp. zeylanicus Jarrett	ವಾಟೆ ಹುಳಿ	Bark	Treat toothache . Helminths.
7.	Artocarpus heterophyllus Lam.	ಹಲಸು	Fruit, leaves bark, latex seeds	Leaf ashes used to treat ulcers, diarrhoea, boils, stomach-ache and wounds.
8.	Artocarpus hirsutus Lam.	ಹೆಬ್ಬಲಸು	Bark, fruit, seeds	Used in Folk Medicine
9.	Bischofia javanica Blume	ನೀಲಿ ಮರ	Stem, leaves	Antiulcer, anthelmintic and antidysenteric activities
10.	Callicarpa tomentosa (L.) J. A. Murray	ಆರತಿ ಗಿಡ/ ದೊಡ್ಡ ನಾತದ ಗಿಡ	Bark, roots	Bark extract is used in the treatment of fevers, liver complaints and skin diseases
11.	Calophyllum apetalum Willd.	ಸುರಹೊನ್ನೆ ಮರ/ ಕಿರಿಹೊನ್ನೆ/ ಹೊಳೆಹೊನ್ನೆ	Flower Gum Resin Leaf Fruit Bark Seeds	Resin used as a vulnerary, resolutive and anodyne; seed oil is used for treating rheumatism and leprosy.
12.	Calophyllum polyanthum Wall. ex Choisy	ಸುರ ಹೊನ್ನೆ	Fruit	Fruits are edible
13.	Canarium strictum Roxb	ಕರಿದೂಪ	Leaves Seeds	Used for rheumatism and asthma; the bark is used as a mosquito repellent.
14.	Carallia brachiata (Lour.) Merr.	ಅಂಡಿಪುನಾರು	Bark fruit juice leaves	To treat septic poisoning and itch, treatment of smallpox
15.	Careya arborea Roxb.	ಕುಂಬಿಮರ	Bark flower young fruits seed	Bark-relieving body swellings and used in coughs and colds and applied externally as an embrocation.

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16.	Caryota urens L.	ಬೈನೆ ಮರ	Bark flowers sap/nector of the inflorescence	To treat gastric ulcer, migraine headaches Seminal weakness and urinary disorders
17.	Cassia fistula L.	ಕಕ್ಕೆ ಮರ	Bark fruit pulp	To treat constipation managemer relieving pain, edema, and reducing skin irritation as result swelling.
18.	Catunaregam spinosa (Thunb.) Tirveng.	ಕಾರೆಕಾಯಿ ಗಿಡ	Dried fruit	Fruit is useful in cases of acute bronchitis and asthma, applied externally in fever, bark is used i rheumatism and to relieve the pa
19.	Chionanthus mala-elengi (Dennst.) P. S. Green	ಹರಿಯಾಗೆ	Bark, leaves, fruits	Used for digestive and liver heal
20.	Cinnamomum malabatrum (Burm.f.) J. Presl	ದಾಲ್ಚಿನ	Bark	Used for treating wounds, fever intestinal worms, headaches and menstrual problems.
21.	Crateva religiosa G. Forst.	ಹೊಡೆಲೆನಾಗೆ, ಹೊಳೆನೆಕ್ಕಿ. ಮಾವಲಂಗ, ನಾರುಂಬೆಲೆ, ನೀರವಾಳ ಮರ	Bark leaves fruit seed	Bark is laxative and stimulates thappetite, fruit used in folklore
22.	Cryptocarya wightiana Thwaites	ಗೂಲಿಮಾವು		Influenza, stomach aches, diarrhdiabetes, vomiting, bone pain, inflammation, illness related to the central nervous system and other ailments.
23.	Dillenia pentagyna Roxb.	ಕಾಡು ಕಣಿಗಿಲು	Fruit flower bark	Used to treat anal fistula, wound diabetes, diabetic carbuncle, neuritis, pleurisy, pneumonia, ar burning sensation
24.	Dimocarpus longan Lour.	ಲಾಂಗಾನ್	Aril, Ripe fruit	The flesh of the fruit is administered as a stomachic, febrifuge and vermifuge, and is regarded as an antidote for poisc
25.	Dimorphocalyx glabellus Thwaites var. lawianus (Hook. f.) Chakrab & N.P. Balakr.			Used in insect bites and skin diseases.
26.	Diospyros buxifolia (Blume) Hiern.	ಕುಂಚಿಗನ ಮಾರ	Fruit	Fruit used in folklore
27.	Diospyros candolleana Wight	ಕರಿ ಮರ	Root-bark	A decoction is used in rheumatis and swellings
28.	Diospyros crumenata Thw.		Root, bark	Anthelmintic and antiprotozoal
29.	Diospyros montana Roxb.	ಜಗಳಗಂಟಿ	Fruit, bark	Fruits are applied externally to treat boils, kidney stones
30.	Diospyros paniculata Dalzell	ಕರೆ ಮರ	Bark	Burns, gonorrhea, biliousness, blood poisoning, rheumatism and

				ulcer.
31.	Dipterocarpus indicus Bedd.	ಬನಸಂಪ, ಚಲ್ಲೆನ್ನೆ, ಧೂಮ, ಗುಗ	Oleo-gum-resin	Urine infection, abscess, Ringworm, Skin diseases, joint p
32.	Donella lanceolata (Blume) Aubrév.		Fruit	Used in folk medicine
33.	Dysoxylum gotadhora (BuchHam.) Mabb.	ಕಾಡುಗಂಧ		The leaves of this plant are major source of rohitukine, a precurso the anti-cancer compound flavopiridol
34.	<i>Dysoxylum malabaricum</i> Bedd. ex Hiern	ಬಿಳಿ ಆಗಿಲು	heartwood	A decoction of the wood is usef in the treatment of arthritis, anorexia, cardiac debility, expel intestinal worms, inflammation, leprosy & rheumatism.
35.	Elaeocarpus serratus L.	ಅಥಕುಂಗೆ	fruits, leaves, roots	The astringent fruits are used in treatment of dysentery and diarrhoe.
36.	Elaeocarpus tuberculatus Roxb.	ಕಾಡುರುದ್ರಾಕ್ಷ	Bark, Fruit	Decoction of bark stomachic, us in biliousness, haematemesis an indigestion; fruit used in rheumatism, epilepsy and typho
37.	Eugenia roxburghii DC.			curing of diabetes, piles, diarrho and dysentery
38.	Euonymus indicus B. Heyne ex Wall.			Constipation
39.	Ficus microcarpa L.f.	ಕಿರುಗೋಳಿ	Root, Bark, Leaf	Root, bark and leaf latex are use medicinally to treat wounds, headache and toothache
40.	Ficus nervosa B. Heyne ex Roth	ನೀರಟ್ಟಿ	Leaf or sap	The sap or leaves of the tree mig have been applied topically to insect bites and stings to allevia irritation and itching.
41.	Flacourtia montana J. Graham	ಕಾಡು ಸಂಪಿಗೆ	Leaf	Leaf is used for asthma, pain rel gynaecological complaints and an anthelmintic, and treatment hydrocele, pneumonia and intestinal worms.
42.	Garcinia gummi-gutta (L.) Robson	ಮಂತುಳ್ಳಿ	dried pericarp of the fruits, powdered extract	An extract obtained from the mature fruit rind, Hydroxy Citr Acid, is used as a treatment aga obesity
43.	Garcinia indica (Thouars) Choisy	ಮುರುಗಲ / ಪುನರ್ಪುಳಿ	Dried pericarp of the fruits, powdered extract	The seed butter (oil) is used as a remedy in the treatment of dysentery and mucous diarrhea The root, bark, fruit and the see oil are used to treat piles,

				abdominal disorders, mouth diseases and worm infestations
44.	Gymnacranthera canarica (King) Warb.	ಪಿಂಡಿಕಾಯಿ	Seed	antidiabetic, antimicrobial, anti- inflammatory, antioxidant activity
45.	Harpullia arborea (Blanco) Radlk.		Seed oil, bark	The oil from the seeds is applied externally as a remedy against rheumatism, An infusion of the pounded bark is drunk to allay pain
46.	Heynea trijuga Roxb. ex Sims			used as an anti-feedant and in the treatment of cholera, arthritis, pharyngitis, tonsillitis
47.	Holigarna arnottiana Hook.f.	ಹೊಳೆಗಾರ, ಹುಲಗೇರಿ, ಕಾಡುಗೇರು.		Treatment of inflammation, arthritis, hemorrhoids, obesity, tumor, cancer, and skin diseases
48.	Holigarna grahamii (Wight) Kurz.	ದೊಡ್ಡ–ಹೊಳೆಗಾರ		treatment of inflammation, arthritis, hemorrhoids, obesity, tumor, cancer, and skin diseases
49.	Holoptelea integrifolia (Roxb.) Planch.	ತಪಸಿ	Bark and leaves	The bark and leaves are used to treat oedema, diabetes, leprosy and other skin diseases, intestinal disorders, piles, sprue and scorpior stings
50.	Hopea parviflora Bedd.	ಬೋಗಿ ಮರ, ಇರುಪು, ಕಿರಲ್ ಬೋಗಿ.	Stem, Root, leaves	Piles
51.	Hopea ponga (Dennst.) Mabb.	ದೊಡ್ಡಲೆ ಬೋಗಿ ಹೈಗ	Bark and leaves	Used in folklore for various alinments
52.	Hydnocarpus pentandrus (BuchHam.) Oken	ಚೌಲ್ಮೂಗ್ರಾ	seed oil	Constipation, inflammation, blood disorders, and worm infestations.
53.	Ixora brachiata Roxb.	ಕೊರಜಿ, ಗುರಾಣಿ		Roots and flowers are used in dysentery, dysmenorrhea, leucorrhoea, hemoptysis, and catarrhal bronchitis.
54.	Knema attenuata (Wall. ex Hook.f. & Thomson) Warb.	ಕಾಡು ಪಿಂಡೆ/ ರಕ್ತಮರ	Bark, Seed	To treat jaundice, chronic fever, inflammations, spleen disorders, breathing disorders and impaired taste sensation
55.	Lagerstroemia microcarpa Wight	ನಂದಿ		Lower blood sugar, Anti lipidemic
56.	Lagerstroemia speciosa subsp. speciosa	ಹೊಳೆದಾಸವಾಳ	Bark	Lower blood sugar, Anti lipidemic, arthrities
57.	Lannea coromandelica (Houtt.) Merr.	ಊದಿಮರ, ಕುರಟಿಗೆ	Bark and leaves	Leaf juice is orally taken to alleviate ulcers and pain, while the sap of the fruit is used to treat cold and cough. The bark is used for gout, dyspepsia, dysentery,

				eruption of the skin, ulcers, and toothache
58.	Lepisanthes tetraphylla (Vahl) Radlk.		Leaves	The leaves are used in the treatment of coughs
59.	Litsea floribunda (Blume) Gamble		Leaves, bark	Leaves are used as one of the ingredients in the preparation of herbal shampoo. to treat certain gastrointestinal and respiratory disorders.
60.	Lophopetalum wightianum Arn.	ಬನಾಟೆ		Leaves are used externally to tree ulcers. Leaf and Bark mixture are used to treat fractures, weakness and debility.
61.	Macaranga peltata (Roxb.) Mull.	ಉಪ್ಪಳಿಗೆ	Leaves	Wound healing and skin disease
62.	Madhuca bourdillonii (Gamble) H. J. Lam.		Bark and Leaves	Used to treat respiratory ailment such as coughs, colds, and asthr
63.	Madhuca longifolia var. latifolia (Roxb.) A.Chev.	ಕಾಡು ಇಪ್ಪೆ	Flower Fruit and seed oil	Bark is used in the treatment of leprosy and skin diseases
64.	Madhuca neriifolia (Moon) H. J. Lam.	ನೀರಿಪ್ಪೆ / ಹೊಳೇಣಿಪ್ಪೆ	Flower Fruit and seed oil	The fruits are used in the treatment of rheumatism, biliousness, consumption, asthma and worm
65.	Mallotus philippensis (Lam.) Mull. Arg.	ಕುಂಕುಮದ ಮರ		The powdered fruits are used to treat skin diseases
66.	Mammea suriga (BuchHam. ex Roxb.) Kosterm	ಸುರಗಿ		Used in the treatment of dyspeps and hemorrhoids, skin itching, rashes and swelling
67.	Margaritaria indica (Dalzell) Airy Shaw	ಹೆಣ್ಣು ನನ್ನೆ/ ಕಾಲಿ ಕುದರಿ	Leaves	Used to treat gastrointestinal problems, wound healing, fever and Malaria, coughs and bronchitis, rashes, itching, and dermatitis, swelling and inflammation
68.	Mastixia arborea (Wight) C.B. Clarke	ಗಲ್ಲಾ	Leaves, Latex	Leaves used to treat digestive problems, latex is used to heal wounds
69.	Meiogyne pannosa (Dalzell) J. Sinclair		Leaves, Latex	Used for wound-healing , pain re
70.	Memecylon talbotianum Brandis	ಚಪ್ಪಲು		help reduce inflammation and alleviate related conditions.
71.	Mesua ferrea L.	ನಾಗಕೇಸರ/ ನಾಗಸಂಪಿಗೆ	Stamen, Flower	The flowers are astringent and stomachic.
72.	Mimusops elengi L.	ರಂಜ / ರಂಜಿ		Bark is used in the treatment of diarrhea and dysentery,

73.	Myristica beddomei King	ಕಾಡು ಜಾಪತ್ರೆ, ಕಾಡು ಜಾಜಿಕಾಯಿ, ಕಾಡು ಪಿಂಡಿ ಕಾಯಿ		Inflammation-related issues.
74.	Myristica magnifica Bedd.			The seeds are used in traditional medicine in the treatment of headaches and other sicknesses. They are powdered, then mixed with senna as a purgative
75.	Myristica malabarica Lam.	ದೊಡ್ಡ ಜಾಕಾಯಿ, ಕಾನಗೆ, ರಾಂಪತ್ರೆ,		The seeds are astringent. They are roasted, ground into powder and used in the treatment of diarrhea. The oil from the seed is used as an ointment to treat ulcers, ease rheumatism and allay pain. The aril has been used as a nerve tonic and to stop vomiting.
76.	Neolamarckia cadamba (Roxb.) Bosser	ಕದಂಬ		The dried bark is used to relieve fever and as a tonic. Leaves extract serves as a mouth gargle, ulcers, digestive problems, fevers and vomiting
77.	Nothapodytes nimmoniana (J. Graham) Mabb.	ದುರ್ನಾತದ ವರ / ದುರ್ವಾಸನೆ ಮರ		The plant is valued for potent anticancer drug camptothecin.
78.	Nothopegia racemosa (Roth) Ding Hou		Leaves and bark	Anti-inflammatory properties
79.	Olea dioica Roxb.	ಬಿಳಿ ಸರೊಳಿ/ ಹೆಜ್ಜೆ ಕರಕಲು/ ಹೆಕ್ಕೆ ರಕಲು / ಮದ್ಯೆ / ಸಡ್ಳಿ	Leaves, bark, root and fruits	Leaves, bark, root, and fruits used in traditional medicine to cure skir diseases, rheumatism, fever, and cancer
80.	Persea macrantha (Nees) Kosterm.		Leaves and Bark	Rheumatism, asthma, ulcer, bruise, mental upset, fractures, swellings, weakness, and debility
81.	Phyllanthus emblica L.	ಬೆಟ್ಟದ ನೆಲ್ಲಿ	Fruit	Fruit: refrigerant, diuretic, laxative, acrid, cooling, carmative, stomatichic;
82.	Piliostigma foveolatum (Dalzell) Thoth.		Leaves or Bark	Used to treat wounds and promote healing.
83.	Pittosporum dasycaulon Mig.	ಕಾಂಡ/ ಎಲೆಗಳು/ ಬೇರು		Used to cure chronic bronchitis, leprosy, skin diseases, Gastrointestinal disorders
84.	Polyalthia fragrans (Dalzell) Bedd.	ಗೌರಿಮರ		Used as Antimicrobial, Anti- inflammatory, antioxidant agent and used for gastrointestinal disorders.
85.	Psydrax umbellatus (Wight) Bridson	ಹೆಚ್ಚೇರನಿಕೆ	Leaves	Kidney and bladder ailment

86.	Pterospermum diversifolium Blume			The bark and flowers are charred and combined with the glands of <i>Mallotus philippinensis</i> in the treatment of smallpox in order to cause suppuration
87.	Pterospermum reticulatum Wight & Arn.	ದಕ್ಷಿಣ ಭಾರತದ ಕನಕಚಂಪಾ	Leaves or Bark	Used against inflammation-relate condition, gastrointestinal disorders
88.	Pterygota alata (Roxb.) R. Br.			Used in the treatment of wounds, sprains, bone fracture
89.	Sageraea laurina Dalzell	ಹರಿಕಿಂಜಲಿ/ ಸಗರೆ	Leaves	leaves are used in the treatment of rheumatism
90.	Sapindus trifoliatus L.	ಅಂಬುವಾಳ	Fruit	It is used in treatment of migraine epilepsy, bronchial asthma, cough and burning sensation. It is also used in preparation of body shampoo, hair shampoo and detergents
91.	Saraca asoca (Roxb.) Willd.	ಅಶೋಕ	Bark	The bark is antiabortive, antibacterial, antiinflammatory, antioxidant, astringent, demulcen diuretic, strongly haemostatic, oxytocic, neural tonic, refrigerent, sedative, uterine tonic, vermicidal
92.	Schleichera oleosa (Lour.) Merr.	ಸಾಗಡೆ	Seed oil	The oil extracted from the seeds is known as Kusum oil and has beer used in traditional medicine to treat skin conditions like eczema, psoriasis, and skin irritations.
93.	Semecarpus kathalekanensis Dassapa & Swaminath			Used in skin diseases
94.	Sterculia guttata Roxb. ex DC.	ಹೇಲ್ ತಾರೆ/ ಹುಲಿ ತೊರಡು ಮರ	Seed oil	Seed oil is used for wound healing
95.	Stereospermum colais (BuchHam. ex Dillwyn) Mabb.		Leaves, bark	Wound healing and pain relieving
96.	Strombosia ceylanica Gardn.		Gum , leaves	Gum is used for wound healing and promote the closure of cuts and sores. Leves are used to reductive fever
97.	Strychnos nux-vomica L.	ಕಾಸರ್ಕ/ ಮುಷ್ಟಿ ಮರ/ ನಂಜಿನಕೊರಡು / ವೀಷಮುಷ್ಟಿ		Used for erectile dysfunction (ED swelling of the stomach, constipation, anxiety, migraine, and many other conditions
98.	Symplocos racemosa Roxb.	ಬಾಲಲೊಡ್ಡೂಗಿನ ಮರ		Used to improve the women's health.

99.	Syzygium caryophyllatum (L.) Alston	ಕುಂಟ ನೇರಳೆ		The seeds and bark were dried a its decoction was used in the ailment of diabetes mellitus
100.	Syzygium cumini (L.) Skeels	ನೇರಳೆ		Used as antihyperglycemic, hypolipemiant, antiinflammator cardioprotective, antidiabetic an antioxidant activities.
101.	Tabernaemontana alternifolia L.	ಬಿಳಿ ಕೊಡಸಲು/ಹಾಲ್ಮೇಟಿ/ ಮದ್ದರಸ/ ಮದ್ದೆಮರ ನಾಗರಕುಡ		Wound healing and pain relif
102.	Tamilnadia uliginosa (Retz.) Tirveng. & Sastre	ಕಾರೆ ಮರ	Leaves	Used against cough, colds and asthma
103.	Terminalia anogeissiana Gere & Boatwr.	ದಿಂಡಿಗ / ದಿಂಡಲು	Bark, Stem, Heartwood, gum	To treat snake bites and scorpior stings
104.	Terminalia arjuna (Roxb. ex. DC.) Wight & Arn.	ಹೊಳೆ ಮತ್ತಿ/ ತೊರೆ ಮತ್ತಿ	Bark	Bark decoction is being used in for anginal pain, hypertension, congestive heart failure, and dyslipidemia
105.	Terminalia bellirica (Gaertn.) Roxb.	ತಾರೆ ಮರ/ ಶಾಂತಿ ಮರ	Dried ripe fruit	Used to protect the liver and to treat respiratory conditions, including respiratory tract infections, cough, and sore throa
106.	Terminalia elliptica Willd.	ಕರಿಮತ್ತಿ	Bark	The bark is used against diarrhea
107.	Terminalia paniculata Roth.	ಕಿಮ್ದಳ	Bark	Used to treatment of inflammatic of parotid glands and in menstrudisorders.
108.	Toona ciliata M.Roem.	ಗಂದಗರಿಗೆ		Used to reduce inflammation and alleviate various inflammatory conditions, promote wound healing and skin recovery
109.	Vateria indica L.	ಬಿಳಿ ಡಾವರು/ ಬಿಳಿ ಧೂಪ/ ಧೂಪದ ಮರ	Resin of trunk	Resin used in chronic bronchitis and throat troubles.
110.	Vitex altissima L.f.	ಭರಣಿಗೆ / ಮೈರೊಳೆ / ನವಿಲಾದಿ / ನೆರೊಳೆ / ತೊರೆನೆಕ್ಕಿ		Rheumatic swellings, Inflammations, Wounds, Ulcers, Allergies, Eczema, Pruritus, Wor infestations.
111.	Vitex leucoxylon L. f.	ಹೊಳ್ಳಲಕ್ಕಿ	Root	The root is astringent. It is used it the treatment of intermittent fever
112.	Walsura trifoliolata (A. Juss.) Harms		Bark, leaves, and roots	Used to treat rheumatism, fever, skin infections, and digestive disorders
113.	Xantolis tomentosa (Roxb.) Raf.	ಕಬ್ಬಿಣದ ಮರ	Root, bark, stem, seeds and leaf	Treatment of acute joint pain

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Karnataka State Medicinal Plants Authority

Karnataka state is rich in medicinal plant biodiversity. About 19.58% of state's geographical area {37,550 sq. km.} is under forest cover (India State of Forest Report 2021). Among the 6771 flowering plant species present in the state 2247 species are used in various medical systems. Vegetation in Karnataka comprises of tropical rain forest, evergreen forest, semi-deciduous, deciduous, grasslands, scrub to thorny forest. Totally 1491 endemic plant taxa have been recorded from the state.

Karnataka is a potential state in terms of traded medicinal plants. The enormous medicinal plant resource of the state, its demand and the threats imposed have necessitated the conservation and sustainable management of the resource. Hence, the Karnataka State Medicinal Plants Authority was established in the state.

Karnataka State Medicinal Plants Authority (KaMPA) was established in 2002 to facilitate overall development of medicinal plant sector in Karnataka vide Government Order No. FEE 33 FDS 2001 Dated: 27.02.2002. The headquarters is located at Bangalore. This Authority is working under the administrative control of AYUSH, Department of Health and Family Welfare.

KaMPA acts as a nodal agency of National Medicinal Plants Board, Ministry of Ayush, Government of India to coordinate, monitor and implement central sector schemes for conservation, development and sustainable management of medicinal plants.

KaMPA is providing a common platform to all the stakeholders to coordinate and cooperate for the development of medicinal plant sector in the state.



